FLIGHT

MAGAZINE

TECHNOLOGY DEPT.

JUNE 1955
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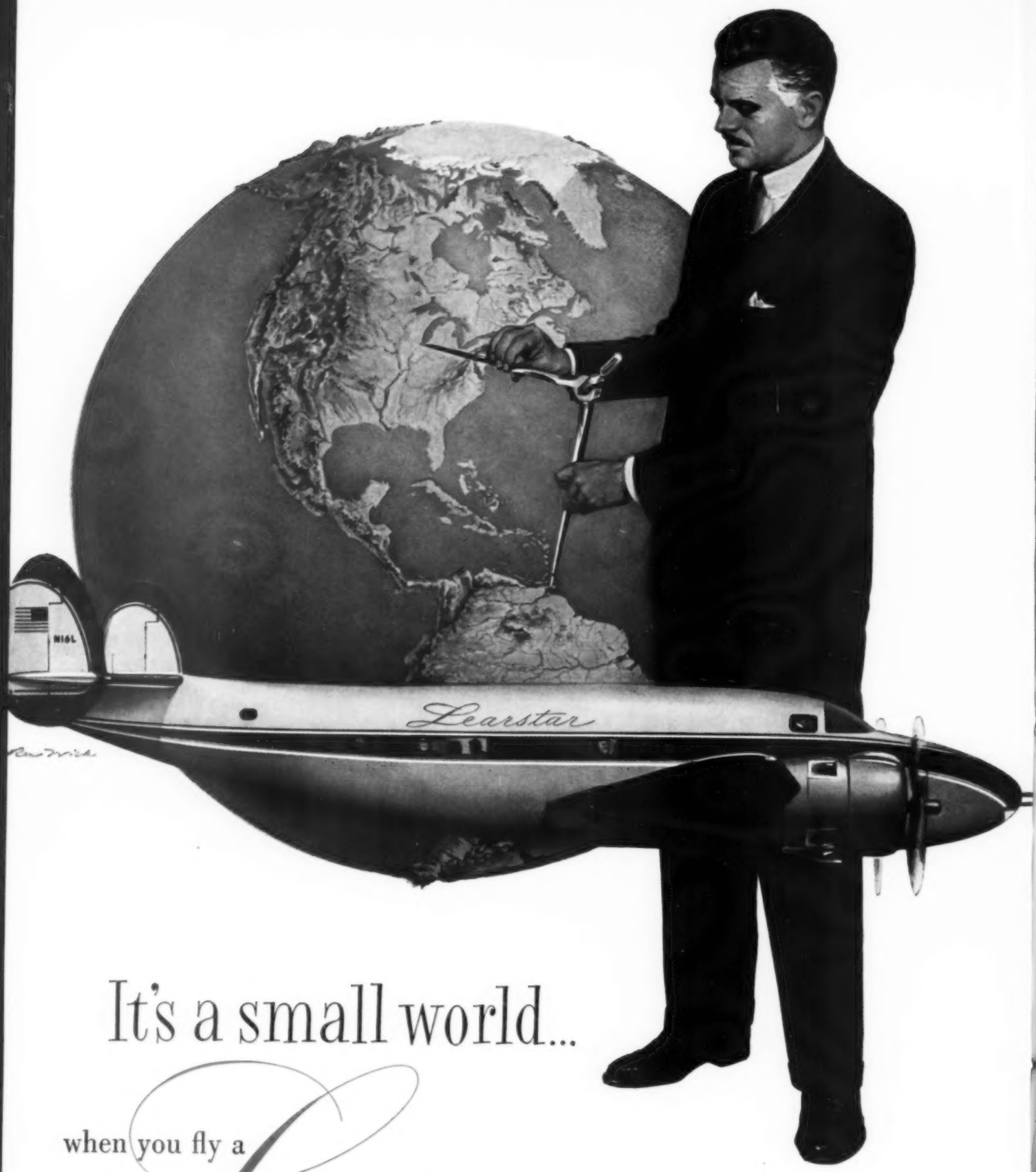
DETROIT

LOCAL AIR SERVICE PROGRESS

(See pages 27-63)



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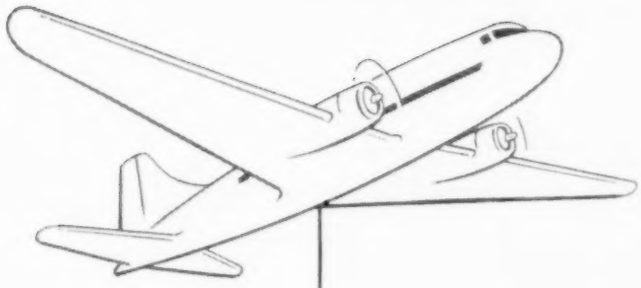

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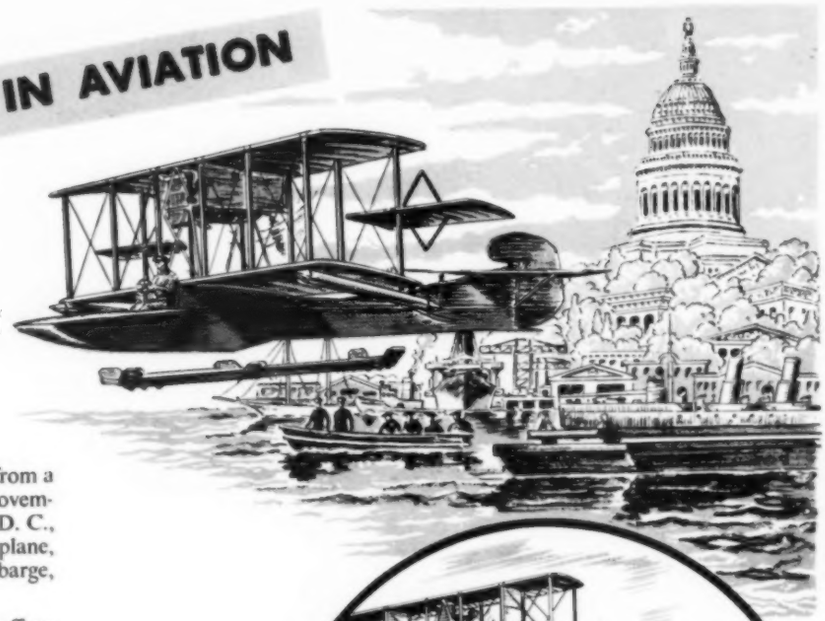

That the catapult method of launching aircraft from a ship could be practical was demonstrated on November 12, 1912, in the Navy Yard at Washington, D. C., when a blast of compressed air propelled a plane, carried on a cradle, along a track laid on a barge, and into the air.

In November of 1915, a Curtiss *F-boat* took off on the first successful catapult launching from a battleship deck. In 1916, the catapult launching device was made standard equipment of the Atlantic Fleet. Since then, catapult-launched aircraft have proved themselves invaluable to our Navy.

Activating power has moved from compressed air through shell blasts and hydraulic pressure to steam. With the arrival of jet aircraft, the catapult became the standard method of launching planes from decks of carriers. Today, steam from the ship's boilers provides safe power for speedy launching of aircraft from all U. S. Navy carriers.

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AVIATION PRODUCTS

AIR Report
Significant Trends and News

U. S. AIR FORCE HAS ORDERED 15 AERO COMMANDERS as VIP staff planes probably to be based in the Washington, D. C., area. President Rufe Amis of Aero Design & Engineering Co., said he plans to increase Commander production so the military order will not reduce commercial deliveries. The USAF Commanders will be off-the-shelf commercial models. Three Commanders were previously purchased by the USAF for the Army and Mrs. Mamie Eisenhower, wife of the president, has been a frequent passenger in Aero Commanders. Deliveries of the new Air Force Commanders begin in July.

CESSNA'S 4-ENGINE MODEL 620 EXECUTIVE TRANSPORT PROTOTYPE had been expected to fly by June but probably will not fly now until late summer or early fall. The pressurized cabin has been constructed and the wing is well along. A special AiResearch turbine unit for pressurization, heating and air-conditioning has arrived for fuselage installation and ground engine tests, for nacelle cooling and other studies, have been under way for some time. It has 4 supercharged 320-hp. Continental engines. Last month Cessna issued its first brochure on the 4-engine airplane, listing for the first time some of the heretofore unspecified design data. Factory figures are as follows:

Gr. Wt., lbs.	13,650
Landing Gr. Wt., lbs.	13,000
Max. Spd., 15,000 ft., mph.	269
Cr. Spd., 18,000 ft. at 70% hp., mph.	235
Rate of Climb, SL, fpm.	1,600
To Distance over 50 Ft., ft.	1,800
Land Distance over 50 Ft., ft.	2,250
Max. Range, miles	1,700
Endurance at 65% hp., hrs.	7.25
Svc. Clng., ft.	27,500
3-Eng. Svc. Clng., ft.	22,500
Aspect Ratio	9
Wing Ldng., lbs./sq. ft.	40.1
Power Ldng., lbs./hp.	10.6
Span, ft.	55
Length, ft.	41.55
Height, ft.	16.4
Fuselage Width, ins.	74
Fuselage Height, ins.	84
Wheel Base, ft.	12.7
Tread, ft.	18.3

RILEY TWIN 55 DELIVERIES HAVE BEEN STARTED BY TEMCO AIRCRAFT through Jack Riley of Dallas, who has sales rights, after delay in engine availability. Riley 55 has new 170-hp. Lycoming engines, tip tanks and new interior and seats, with cruising speed of more than 170 mph.

FLIGHT MAGAZINE

Including SOUTHERN FLIGHT and MODERN AIRPORTS

JUNE, 1955 VOL. 43, No. 6

COVER: This is the 6th consecutive year we have devoted this issue of our magazine to local air service progress and our cover is dedicated to the phenomenal strides the feeders have accomplished. It features, besides the insignia behind the 14 local carriers' records, the first photo of the latest DC-3 replacement transport to be tried by a feeder — a Convair 240 which begins operation in July in the Mohawk Airlines fleet.

—(Photo by Bob Dolivo.)

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GEORGE E. HADDAWAY, Editor-Publisher; TOM ASHLEY, Managering Editor; FRED N. STONES, JR., Business Manager; E. H. PICKERING, Consultant; P. O. Box 750 (1901 McKinney Ave.), Dallas, Texas—Telephone STerling 2125

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TRANSITION FROM ROTOR TO PROPELLER THURST has been achieved for the first time by a convertiplane with the McDonnell XV-1, shown here being propelled by its pusher propeller while its unloaded rotor free-wheels with fixed wings furnishing the lift. Four-place Army research XV-1 has pressure-jet tip propulsion for its rotor and a Continental R-975-19 piston engine for its pusher propeller.

(McDonnell Photo.)

LIGHTPLANE DELIVERIES IN APRIL totalled 426 units at $6,459,000 as compared to 451 units, billed at $6,421,000, in March and bringing total January-April deliveries for 1955 up to 1,525 units and $22,453,000 in billings, according to the latest Aircraft Industries Assn. accounting. This is at an annual rate of 4,575 units worth $67,359,000 as compared to last year's actual record of 3,071 deliveries worth $43,461,000 in manufacturers' billings. The 1955 record of manufacturers for January-April is as follows:

Make	Number	Billings
Aero Commander	26	$ 1,765,000
Beech	231	8,404,000
Call Air	2	10,000
Cessna	573	6,468,000
Mooney	10	25,000
Piper	679	5,754,000
Taylorcraft	4	27,000
Totals	1,525	$22,453,000

(Models included 150 Bonanzas, 38 Twin-Bonanzas, 32 Twin-18's and 11 Model 45's; 323 Cessna 180's, 192 Cessna 170B's, 6 Cessna 195's, 51 Cessna 310's and 1 Cessna 305; 345 Piper Pacer-Tri-Pacers, 230 Piper Super Cubs and 104 Piper Apaches.)

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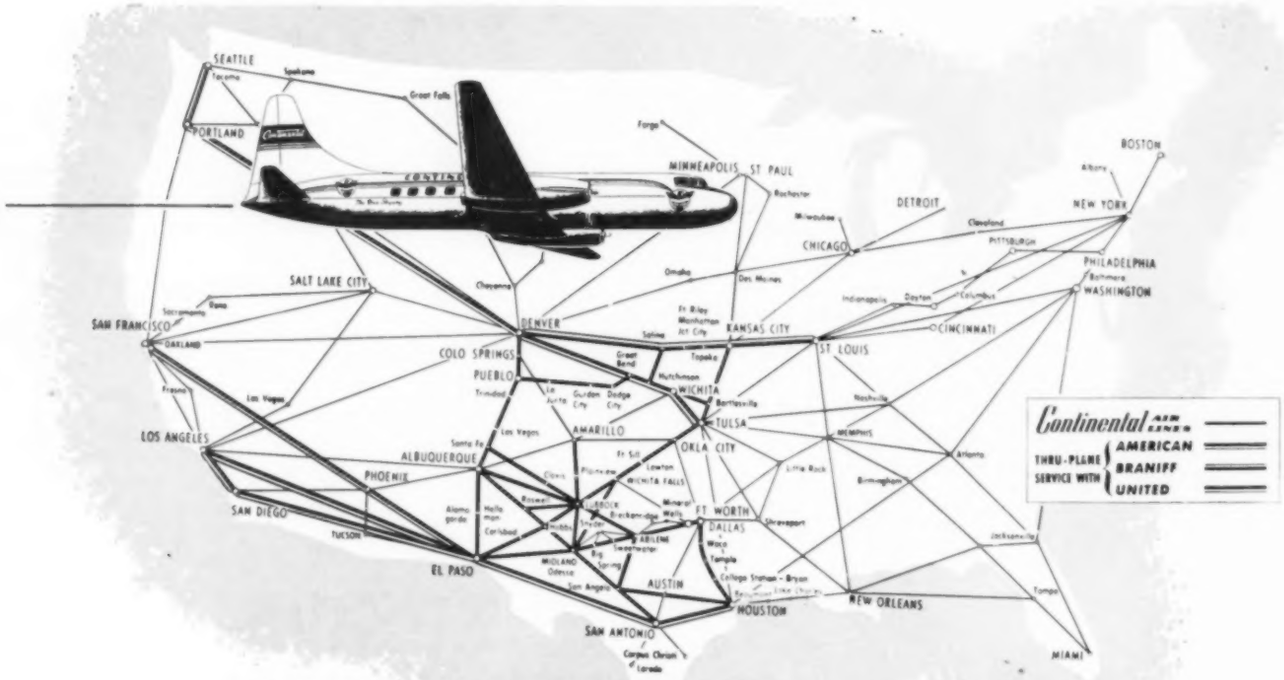

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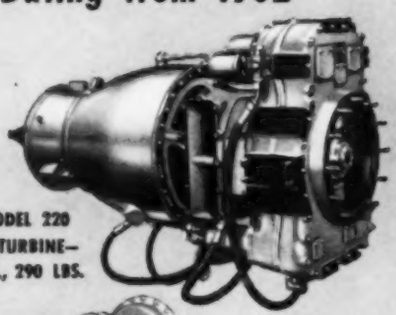
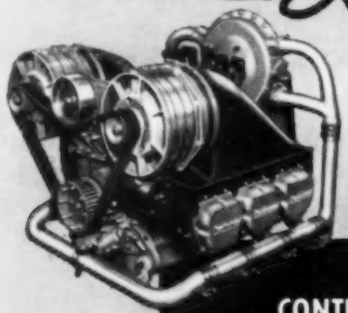
New, modern helicopters are finding it increasingly beneficial to make use of the latest Continental developments for power production. Two examples of recently tested engines built around Continental power plants are shown. One—the Sikorsky XH-39 at left, above — employs the CAE Model 220 shaft turbine; the other — Cessna's CH-1 at right — uses CMC Model FS0470 piston engine. Both are unique.

The XH-39—first helicopter with completely retractable landing gear — holds the world's record for helicopter altitude (24,500 ft.) and in addition, the world's record for helicopter speed (156.005 m.p.h.). The CH-1 features simplified design, using one-third fewer gears. Location of engine in the nose makes for ease of access, promotes efficient cooling, and frees the center of gravity behind the cockpit for use in disposable load.

Thus Continental supplies each type of power plant to suit the peculiar requirements of two widely different modern helicopter design concepts. Additional power plants engineered for their suitability for helicopters will be forthcoming from the Continental organization within the near future, and great things can be expected.



CAE MODEL 220 SHAFT TURBINE— 425 H.P., 290 LBS.



CMC MODEL FS0470 SUPERCHARGED AND FAN-COOLED HELICOPTER ENGINE—260 H.P.

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EDITORIALS

MOMENTOUS LEGISLATION

ON May 19 President Eisenhower signed a bill granting local service airlines permanent certificates of convenience and necessity.

Few will deny that this is the most significant civil aviation legislation since passage of the 1938 Civil Aeronautics Act.

As pointed out elsewhere in this edition, which spotlights a decade of local air service progress, permanent certification is no cure-all for the many problems which beset the hardy band of 13 companies pioneering in the short-haul scheduled airline business.

But three cardinal principles emerge from the new legislation over and above all other considerations. These are:

1. That permanent certificates for the local carriers legalize the proposition that all our people, not just those who reside in the larger cities, will be afforded the benefits of modern air transportation;

2. That local service airline management can now devote full time to building successful companies through traffic generation instead of spending most of their time, money and energy trying to justify their existence before the Civil Aeronautics Board as heretofore;

3. That in the final analysis (and let this never be forgotten) all aviation progress either starts or ends in the halls of Congress; for in the case of permanent certification, the then-chairman of the CAB, Chan Gurney, spoke vehemently against the legislation during committee hearings.

It is a matter of real regret that the legislation was not backed up by official concurrence of the entire Civil Aeronautics Board membership. Since the hearings, however, a new chairman has been appointed, Ross Rizley by name, and every indication points to the fact that the former temporary chairman certainly did not voice the views of the new chairman, who has been in the job only a few brief weeks. Rizley announced immediately after the President's signature went on the legislation that the Board would proceed with dispatch in carrying out the mandate of Congress.

So it is that another major historical milestone has been reached in the field of U. S. commercial aviation. We would be remiss if we did not pay tribute to the leaders in the House (Priest, Hinshaw, Harris and J. B. Williams) and in the Senate (Monroney, Magnuson, Schoeppel and Bible) who steered the legislation through to final passage. Most noteworthy in these efforts was the dedicated work of Senator Mike Monroney (Dem.-Okla.). He reminds us a great deal of the late Senator Pat McCarran of Nevada, author of the Civil Aeronautics Act of 1938, and it appears likely at this writing that Senator Monroney will more than adequately fill the vital McCarran shoes as a realistic aviation champion in the best American tradition.

Now let's see what the local service airlines can do with the hamstring of temporary "experimental" certificates removed. The eyes of the nation are upon them! Who will be proved correct during the next few years—the Chan Gurney-Robert Murray obstructionists or those in our government who believe the airplane is here to stay and that it should be made available to all our people? Today's evidence, as revealed in this edition of FLIGHT MAGAZINE, definitely suggests that permanent certification for the local carriers is long overdue. Now that it's accomplished, let's all hope that the CAB and the carriers will make it work and that the people in the local service towns will use the services offered in ever-growing volume!

FAIRNESS NEEDED IN VFR RULES

OF all the unsound, half-baked, demagogic brainstorms aviation has produced in half a century, the worst is the threat by a few misguided "experts" to take over the air space in high-density areas to the total exclusion of any aircraft that flies which isn't big or heavy or fast.

Of course there is a growing problem of traffic control in high-density areas, with serious collision hazards. And, of course, the situation could be eased immediately by prohibiting anything but the airlines from venturing into high-density areas, especially when the weather deteriorates. But that's like a doctor killing his patient instead of remedying his ailments.

We don't like the attitude of those who say flatly that Cubs ought not to be allowed to enter a congested area. Today's business planes are not "Cubs" in the sense that some of the airline fancy-boys delight in calling them. Nor are business pilots out on a lark when they enter congested areas. Business flying has come a long way from the days of private or personal flying. The majority of today's 50,000-odd modern business planes are well-equipped, highly-efficient and capably-piloted aircraft having remarkable transportation advantages. In fact, they perform more air transportation than all the domestic airlines combined — for the simple reason that they are far more flexible in their service than the big airline transports, which total only 1,500 in number and serve fewer than 600 airports while business planes serve some 6,000 airports.

The truth is that the big airplanes have created their own problems but the big-airplane people are either incapable of or not interested in solving their own problems without running over or, as they now threaten, actually killing off all the so-called "little planes." "Get outta my way, punk," is what the big boys are saying and we don't like it.

Since when can 1,500 planes dictate or dominate the needs of 50,000 planes? The air space belongs to all the people — not to those with the loudest noise

(Continued on page 89)

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2. That local service airline management can now devote full time to building successful companies through traffic generation instead of spending most of their time, money and energy trying to justify their existence before the Civil Aeronautics Board as heretofore;

3. That in the final analysis (and let this never be forgotten) all aviation progress either starts or ends in the halls of Congress; for in the case of permanent certification, the then-chairman of the CAB, Chan Gurney, spoke vehemently against the legislation during committee hearings.

It is a matter of real regret that the legislation was not backed up by official concurrence of the entire Civil Aeronautics Board membership. Since the hearings, however, a new chairman has been appointed, Ross Rizley by name, and every indication points to the fact that the former temporary chairman certainly did not voice the views of the new chairman, who has been in the job only a few brief weeks. Rizley announced immediately after the President's signature went on the legislation that the Board would proceed with dispatch in carrying out the mandate of Congress.

So it is that another major historical milestone has been reached in the field of U. S. commercial aviation. We would be remiss if we did not pay tribute to the leaders in the House (Priest, Hinshaw, Harris and J. B. Williams) and in the Senate (Monroney, Magnuson, Schoeppel and Bible) who steered the legislation through to final passage. Most noteworthy in these efforts was the dedicated work of Senator Mike Monroney (Dem.-Okla.). He reminds us a great deal of the late Senator Pat McCarran of Nevada, author of the Civil Aeronautics Act of 1938, and it appears likely at this writing that Senator Monroney will more than adequately fill the vital McCarran shoes as a realistic aviation champion in the best American tradition.

Now let's see what the local service airlines can do with the hamstring of temporary "experimental" certificates removed. The eyes of the nation are upon them! Who will be proved correct during the next few years—the Chan Gurney-Robert Murray obstructionists or those in our government who believe the airplane is here to stay and that it should be made available to all our people? Today's evidence, as revealed in this edition of FLIGHT MAGAZINE, definitely suggests that permanent certification for the local carriers is long overdue. Now that it's accomplished, let's all hope that the CAB and the carriers will make it work and that the people in the local service towns will use the services offered in ever-growing volume!

FAIRNESS NEEDED IN VFR RULES

OF all the unsound, half-baked, demagogic brainstorms aviation has produced in half a century, the worst is the threat by a few misguided "experts" to take over the air space in high-density areas to the total exclusion of any aircraft that flies which isn't big or heavy or fast.

Of course there is a growing problem of traffic control in high-density areas, with serious collision hazards. And, of course, the situation could be eased immediately by prohibiting anything but the airlines from venturing into high-density areas, especially when the weather deteriorates. But that's like a doctor killing his patient instead of remedying his ailments.

We don't like the attitude of those who say flatly that Cubs ought not to be allowed to enter a congested area. Today's business planes are not "Cubs" in the sense that some of the airline fancy-boys delight in calling them. Nor are business pilots out on a lark when they enter congested areas. Business flying has come a long way from the days of private or personal flying. The majority of today's 50,000-odd modern business planes are well-equipped, highly-efficient and capably-piloted aircraft having remarkable transportation advantages. In fact, they perform more air transportation than all the domestic airlines combined — for the simple reason that they are far more flexible in their service than the big airline transports, which total only 1,500 in number and serve fewer than 600 airports while business planes serve some 6,000 airports.

The truth is that the big airplanes have created their own problems but the big-airplane people are either incapable of or not interested in solving their own problems without running over or, as they now threaten, actually killing off all the so-called "little planes." "Get outta my way, punk," is what the big boys are saying and we don't like it.

Since when can 1,500 planes dictate or dominate the needs of 50,000 planes? The air space belongs to all the people — not to those with the loudest noise

(Continued on page 89)

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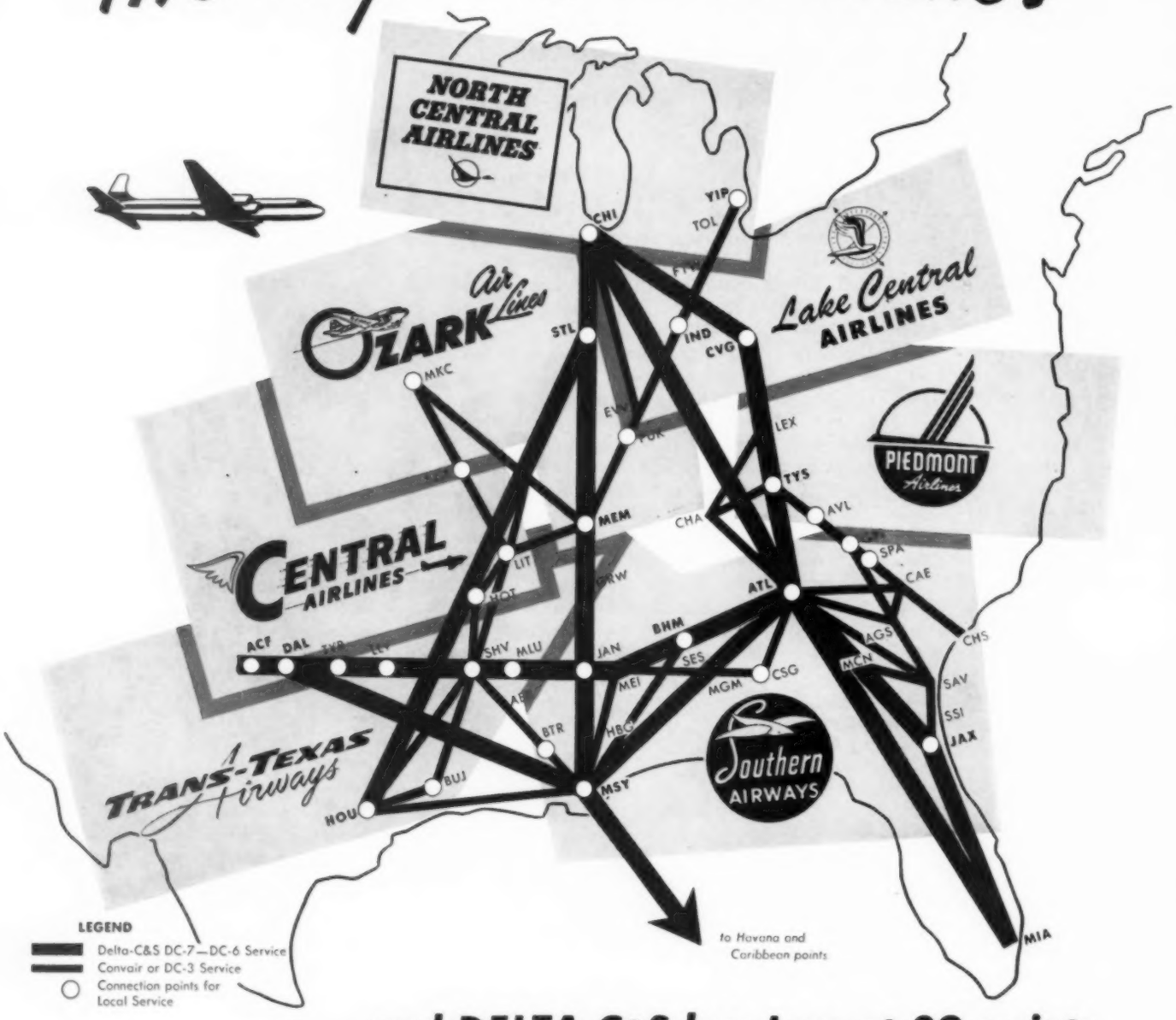

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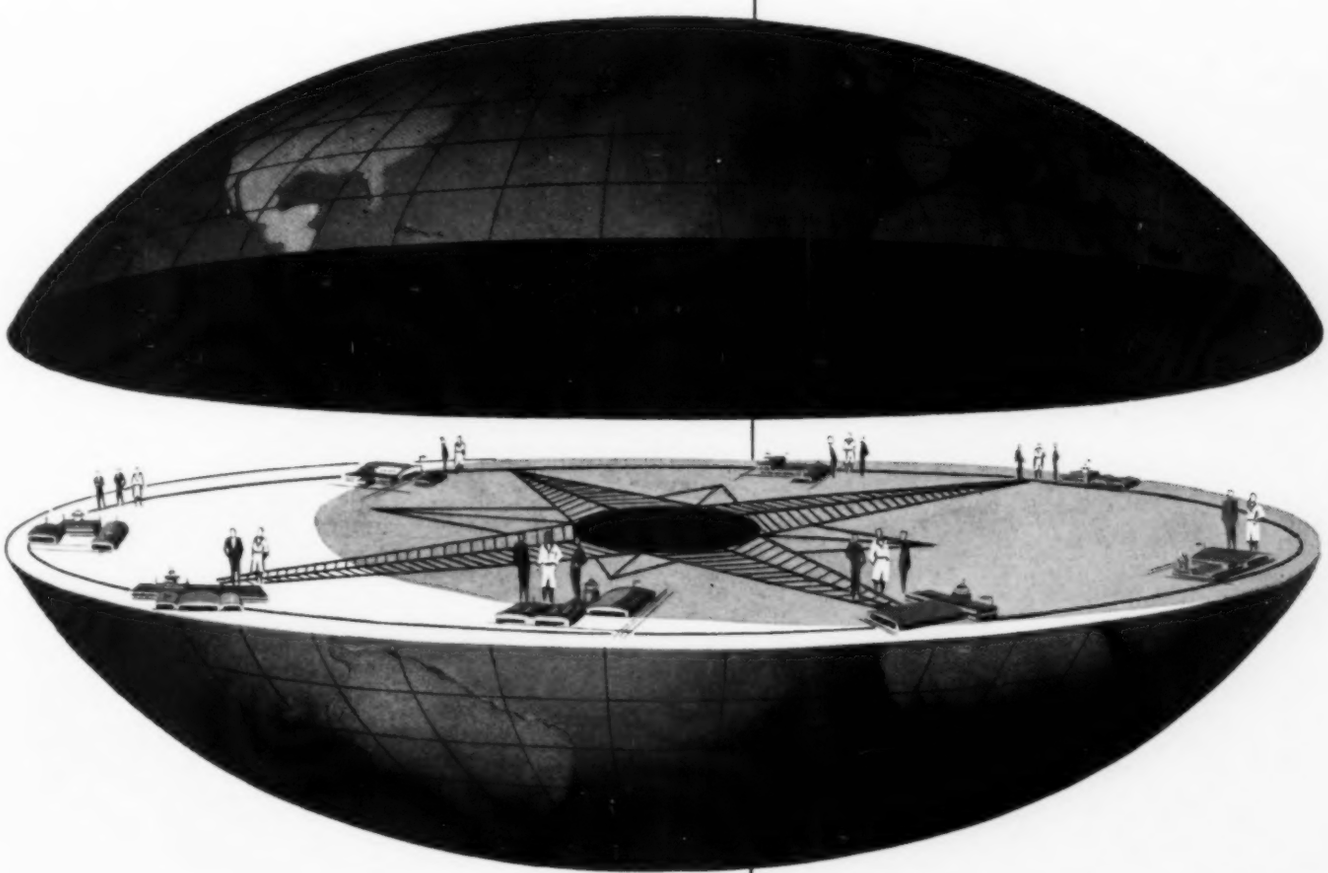

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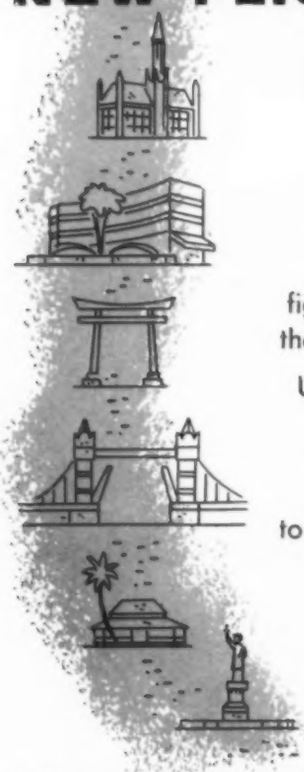

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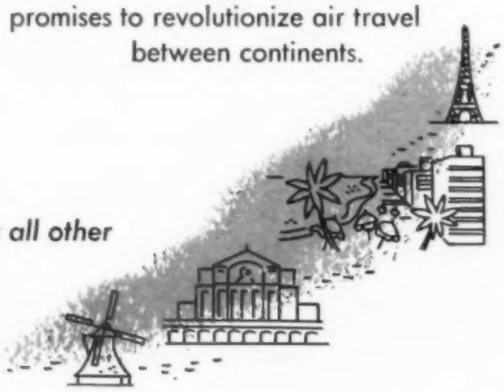

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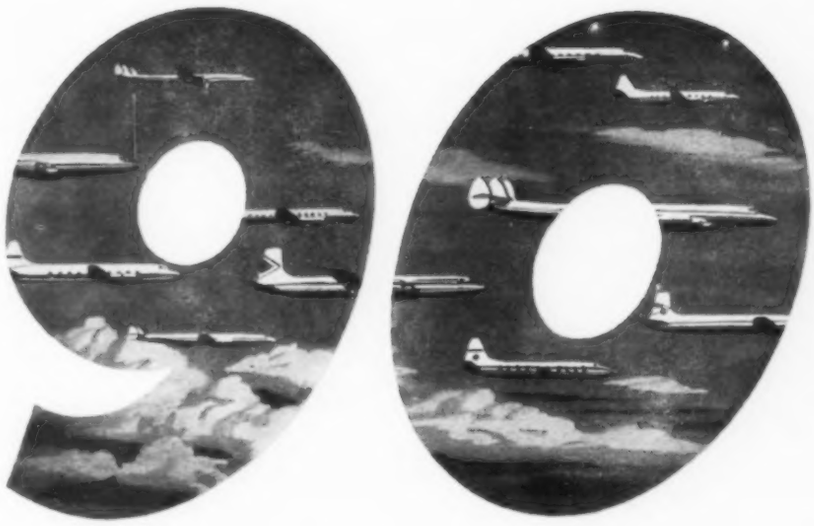

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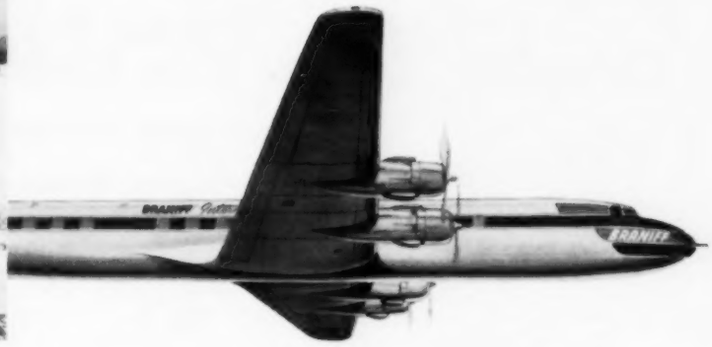

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[PUBLIC LAW 38]
[CHAPTER 41]

H. R. 2225

Eighty-fourth Congress of the United States of America

AT THE FIRST SESSION

Begun and held at the City of Washington on Wednesday, the fifth day of January, one thousand nine hundred and fifty-five

THE WHITE HOUSE
MAY 12 1955

GENERAL SERVICES ADMINISTRATION
RECEIVED
MAY 1 1955
FEDERAL REGISTER DIVISION

An Act

To amend section 401 (e) of the Civil Aeronautics Act of 1938, as amended.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That section 401 (e) of the Civil Aeronautics Act of 1938, as amended (49 U. S. C. 487 (e); 52 Stat. 987), is amended by adding at the end thereof the following:

"(3) If any applicant who makes application for a certificate within one hundred and twenty days after the date of enactment of this paragraph shall show that, from January 1, 1953, to the date of its application, it or its predecessor in interest, was an air carrier furnishing, within the continental limits of the United States, local or feeder service consisting of the carriage of persons, property, and mail, under a temporary certificate of public convenience and necessity issued by the Civil Aeronautics Board, continuously operating as such (except as to interruptions of service over which the applicant or its predecessors in interest have no control) the Board, upon proof of such fact only, shall, unless the service rendered by such applicant during the period since its last certification has been inadequate and inefficient, issue a certificate or certificates of unlimited duration, authorizing such applicant to engage in air transportation between the terminal and intermediate points within the continental limits of the United States between which it, or its predecessor, so continuously operated between the date of enactment of this paragraph and the date of its application: *Provided*, That the Board in issuing the certificate is empowered to limit the duration of the certificate as to not over one-half of the intermediate points named therein, which points it finds have generated insufficient traffic to warrant a finding that the public convenience and necessity requires permanent certification at such time."

Sam Rayburn
Speaker of the House of Representatives.

Richard Nixon
Vice President of the United States and President of the Senate.

APPROVED
MAY 19 1955

Dwight D. Eisenhower

Thank You!
Mr. and Mrs. America
LAKE CENTRAL AIRLINES
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Rizley Welcomes Locals Into Permanent Service

CAB Chairman Ross Rizley

THE action of the Congress and the President in granting permanent certification to the 13 local service air carriers, plus the one trunk airline that recently acquired the 14th local air carrier, was a major contribution to the development of American civil air transportation.

The Board members and staff join with me in welcoming these local carriers into the permanent air transport network of our nation. We confidently expect that the services which they have developed during their experimental years, and which have now been made largely permanent, will prove of increasing worth to all our people in the future.

Facing a permanent future for the first time, the local service air carriers deserve great credit for the way in which they developed and adapted their operations to meet the special needs of the people who live in the smaller cities and towns of our country. And as the Board, through regular proceedings, assists them in establishing more efficient route systems, we may look forward to the day when increased passenger, mail, and property loads will make them economically self-sufficient and provide them with the financial strength to break the bonds of subsidy.

This is the goal of all our American air carriers — operation without Federal subsidy. Most of our domestic trunklines have achieved it already. I am confident that our local air carriers will eventually duplicate that record.

Best Wishes and Happy Landings!

—Ross Rizley, Chairman, Civil Aeronautics Board, May 27, 1955

GENERAL SERVICES ADMINISTRATION RECEIVED MAY 1 1955 ACQUISITION

Permanence for Local Air Service

Congress directs the Civil Aeronautics Board to issue permanent certificates to local carriers

By GEORGE E. HADDAWAY

THERE'S a bright new star a-shining on commercial aviation's broad horizon now that the local service airlines are to receive permanent certificates of convenience and necessity through the direct mandate of Congress.

This historic action came about last month when the President signed the legislation, which reads in part:

"If any applicant who makes application for a certificate within one hundred and twenty days after the enactment of this section shall show that . . . it or its predecessor in interest, was an air carrier furnishing, within the continental limits of the United States, local or feeder service consisting of the carriage of persons, property and mail, under a temporary certificate of public convenience and necessity issued by the Civil Aeronautics Board, continuously operating as such . . . the Board, upon proof of such fact only, shall, unless the service rendered by such applicant for such period was inadequate and inefficient, issue a certificate or certificates of unlimited duration, authorizing such applicant to engage in air transportation between the terminal and intermediate points within the continental limits of the United States between which it, or its predecessor, so continuously operated between the date of enactment of this section and the date of its application PROVIDED, *that the Board in issuing the certificate is empowered to limit the duration of the certificate to those intermediate points which have, over a reasonable period of time, generated insufficient traffic and revenues to reimburse the applicant carrier for its direct costs and a reasonable share of its indirect costs incurred in serving such points."*

Thus ends a decade of "experimental" scheduled air transportation between the larger terminal type cities and the smaller towns whose population had so long been denied the convenience of and right to modern air transport services — the longest experiment in the entire half-century of U. S. aviation history.

It is ironic that permanent certification of the local airlines came about more rapidly, was actually aided and abetted by an attempt on the part of the present administration in Washington to stifle and hamstring these carriers. It was only last year that the amazing and nefarious document on civil aviation policy was authored by the Air Coordinating Committee under the chairmanship of one Robert Murray, Jr., undersecretary of Commerce who has now happily gone with the wind. This ill-begotten policy statement in effect condemned the local service "experiment" and virtually said that traditional U. S. government civil aviation development as classically illustrated by the establishment of local service airlines ten years ago would come to an end.

Thanks to Mr. Murray and myoptic cohorts, the United States Congress stepped in to stop this rude intrusion into its hallowed domain by the executive branch of government.

So it was that the battle to give permanent certificates to the locals became the means by which Congress disavowed the inane policy statement,

Monroney Views Significance of Historic Action

Senator Mike Monroney

TODAY, May 19, 1955, the President signed the feeder airline bill, and by this step we enter a new phase of domestic aviation development.

Now that the feeder lines are removed from the hazards of temporary life and can plan ahead for planes, personnel, route structure and additional service, we can look forward to filling in the thousands of gaps left in our national air service pattern.

I am convinced the same spirit of pioneering which has developed this service under temporary status will continue with intensity until we shall soon find these fine lines serving millions of passengers, and carrying rapid air service in mail and express to most points of the United States.

Surely the Local Service Airlines have earned their spurs, and this recognition given by Congress and the President will connect our air transport system together for the benefit of rural, small town and metropolitan areas.

I am sure that with permanent certification, some enterprising, well-known plane producer will engineer and develop the perfect transport plane for this type of service. It not only will add to the comfort, convenience and efficiency of the feeder line operations, but will add insurance to our airlift for defense in the event of any emergency.

My heartiest congratulations go out to the operators and their loyal and efficient staffs in completing this stage of their air development.

—A. S. Mike Monroney, Okla., Chairman, Subcommittee on Aviation, U. S. Senate Committee on Interstate and Foreign Affairs

so contrary to the spirit and the letter of the law as passed by Congress in the Civil Aeronautics Act of 1938, and reasserted congressional authority. The locals should build a monument to Mr. Murray.

There's no doubt that the permanent certification of the fourteen regional or local carriers is the most far-reaching and significant aviation legislation enacted by Congress since the Act of 1938. As Senator Mike Monroney of Oklahoma, who so valiantly and brilliantly led the fight for the legislation in the Senate, puts it: "The local service carriers have earned their spurs." The proposition that air transportation to the smaller communities of this nation who need and use it will have the right to have it now is assured. The legislation does not provide for permanent subsidy nor does it give an operator any license for inefficient management or impractical route structures or any special access to the public feed trough. It simply says that air service shall be provided on a permanent basis with permanent operators to the smaller communities of the nation, breaking forever the unintentional air service monopoly of the larger cities.

Permanent certification has materially changed the outlook of the whole local airline picture and none of us can yet predict just how far-reaching these changes will be. The Civil Aeronautics Board chairman has pledged that the Board stands ready to implement the new law just as soon as the carriers file their applications in accordance with the new Act and that of the more than 300 intermediate points now served by the locals, at least half will be made permanent stopping points on the certificates of the carriers. Since the new law probably suspends or completely negates all renewal and route change proceedings now pending, no one can predict how long it will take for the carriers to institute new proceedings for better routes and extensions of services. One thing is certain — the work load now facing the CAB is a tremendous one and all patience and cooperation must be provided during the transition from orphan status to complete integration into the U. S. air transport family.

Locals Still Face Problems

The local carriers are the first to admit that the shiny new permanent certificates are not going to solve all their problems. They do believe, however, that some of the major stumbling blocks to economic self-sufficiency and better service have been removed. The certificates will help most with needed equity financing, which has been so difficult to get heretofore. The companies are in a much stronger position to attract permanent investors. Communities served by the local carriers can now give long-range planning to their airport needs and commitments to the carriers, which means they won't be so reluctant to provide facilities and amortize improvements. Permanent certificates mean that employes of the airlines have security of employment. Who wants to work for a here-today-gone-tomorrow airline?

But permanent certification does not improve the financial burden imposed by year-to-year subsidy appropriations nor the burden imposed by niggardly service pay rates for hauling the mail. When a local service carrier goes to the bank to borrow money, say for the purchase of new airplanes if they ever come along, the banker is still going to be worried about the uncertainty of Congress continuing subsidy appropriations. Equipment loans probably would have to run for at least five years and a lot of changes could come about not only from CAB, post office and administration policies but also from changes in Congressional attitude to affect the soundness of the loans.

Even so, the locals stand on the threshold of a brilliant future with the permanent certificates. They have fewer problems than ever before. Next to the new certificates in importance is their improved public relations, especially with Congress. Next, is their greater usefulness to the public they serve. This latter feather in their cap helped build the good relations with Congress and the impressed Congress came through with the permanent certificates.

The locals' increasing usefulness to the public they serve, measured by the

improvement in service to the smaller communities and the resulting greater traffic response, stem from improved route patterns granted by the CAB and the fact that the carriers, most of them at least, have become educated and more and more expert in running airlines. In the first years of local service some of our local airline management thought all they had to do was to fly the airplanes over their routes and the passengers would flock out to get on them. Poorly financed, running to Washington trying to justify their very existence, dodging creditors, placating townspeople and politicians all along the line, they actually did not have a fair shake in learning to run an airline properly.

The 1955 first quarter operations reveal encouraging gains and above all the growing usefulness of the carriers. While miles flown increased only about eight per cent over the first quarter of 1954, the number of passengers carried and revenue passenger miles shot up about 33 per cent. This means that there were nearly two additional passengers on board every mile flown. Something over 600,000 passengers were carried in the first quarter of this year, indicating a figure for the entire year of around three million for more than five billion passenger miles. When the Civil Aeronautics Board fought against permanent legislation they did not have knowledge of these indisputable facts on traffic gains so necessary in the constant fight to reduce dependence on subsidy appropriations.

Considerable progress also has been evident, consistent with the general trend over the past six years, in the realm of relationships with the trunk airlines. The trunks are more appreciative of the business the locals are giving them and the locals are likewise appreciative of the help and traffic generated by the trunks. More and more trunk operators are showing an open-mindedness and even outright willingness to turn over questionable non-trunk stops to the locals. By the same token there doesn't seem to be too much evidence that the locals desire to compete with the trunks or will try to become trunk operators.

It is too bad the same cannot be said about the locals' relations with the Civil Aeronautics Board. The permanent certification legislation was passed over the Board's protest. This may or may not have an effect on how the Board will treat the locals as time goes on. We will just have to wait and see. Now that Congress has acted it is hoped that the Board and the carriers will reinstate the erstwhile partnership to accomplish the common purpose of bringing modern and useful air service to a larger number of our smaller cities and towns. Good feelings and relations must exist between the two. The locals themselves, through their Conference of Local Service Airlines, can and must work with the Board in an atmosphere of harmony and tolerance.

The principal place where bad re-

(Continued on page 60)

CAB Policy Statement on Permanent Certifications

IN a determination of policy related to legislation signed by the President on May 19, 1955, the Civil Aeronautics Board announced plans on June 1 for expedited procedures to issue permanent certificates to the nation's local service air carriers. It's policy statement follows in full:

These proceedings will be limited to the issues inherent in the grant of permanent certificates to the carriers and the determination of those intermediate points to be certificated on a temporary basis. Each local service air carrier must file an application under the new statute. Following the filing of such an application, the Board proposes to issue show cause orders indicating those stations which, on the basis of its preliminary judgment, warrant permanent certification, and those other stations which, because of their more marginal traffic record are tentatively believed to warrant temporary rather than permanent certification.

300 On-Off Fares Monthly Minimum for Permanent Stations

The Board intends to rely largely on an industry-wide traffic standard, which will tend to assure equitable treatment among the cities involved. After analysis of the latest available data, the Board has concluded that an average of five or more passengers enplaned per day (approximately 300 per month on and off per station) should provide a reasonable basis for initial selection of the group of intermediate stations for permanent certification. In the absence of further evidence, those stations enplaning fewer than five per day would receive temporary designation. While the Board does not intend to restrict the right of any party to submit relevant evidentiary material, the Board believes that the record in the proceedings covering those points indentified for permanent certification could be limited, largely, if not entirely, to stipulated data. Additional evidence, therefore, might be necessary only as to those points tentatively identified for temporary certification, thus speeding the issuance of the permanent certificates. In regard to the latter group of stations the Board wishes to emphasize that no station which is eligible for either permanent or temporary certification will lose service as a result of these proceedings. Further, although any city listed in the show cause order as warranting temporary certification may, of course, submit evidence in support of permanent authorization, such a presentation is not essential at this time. Such cities will be afforded an opportunity to demonstrate their ability to generate a sufficient volume of traffic to warrant a continuation of scheduled service and to make a further presentation in a later proceeding. (See page 35 for traffic at 362 cities.—Editor.)

The permanent certificate proceedings will be scheduled for processing in the order in which the carriers' existing temporary certificates expire. They will be given priority over other local service cases.

Southwest, Trans-Texas First

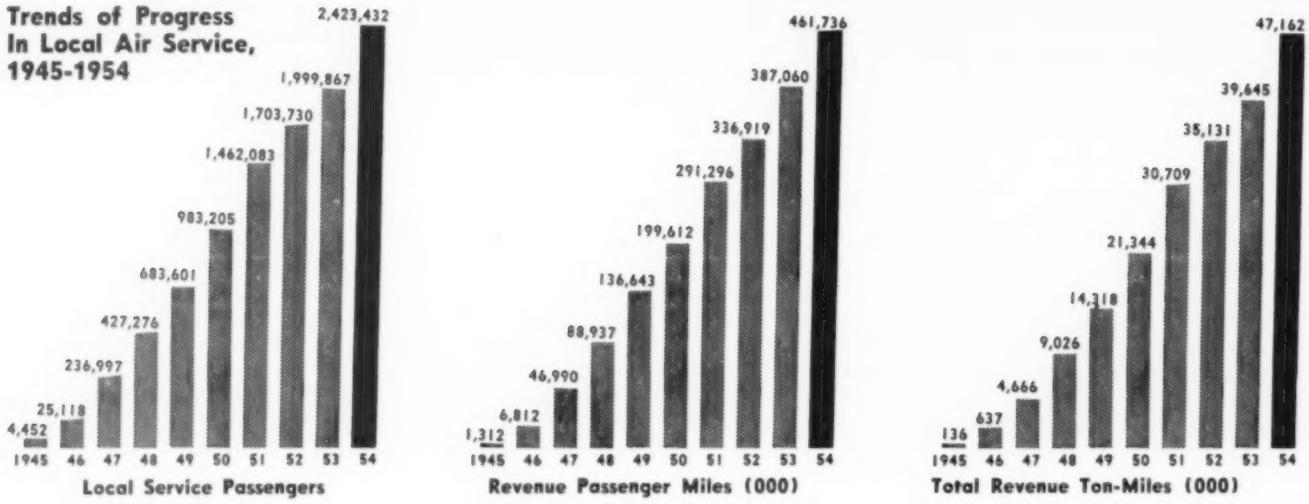
Under this schedule the permanent certificate proceedings covering Southwest Airways and Trans-Texas Airways will be among the first to be handled. It is not contemplated that show cause orders will be necessary for these two carriers, since there are formal proceedings now near completion concerned with the temporary or permanent renewal of these carriers' routes as well as certain route amendment proposals. It is presently hoped that the decisions in these two cases will be issued concurrently with decisions on permanent certification for Southwest and Trans-Texas.

Because of the restriction of the issues to those largely non-controversial in nature, and in order to assure the most efficient use of available staff essential to the most rapid processing of these cases, public hearings in the permanent certificate proceedings will be held in Washington.

Although consideration of proposed route extensions and modifications of local service routes must necessarily be delayed somewhat in order to give priority to the permanent certificate applications, the Board plans to consider such proposals as soon as possible in appropriate individual or consolidated proceedings.

The Board wishes to emphasize that its plans for procedures are designed, therefore, to expedite to the greatest extent possible the processing of permanent certificates for local service air carriers. Briefly summarized, the new statute, section 401 (e) (3) of the Civil Aeronautics Act, provides that (1) to be eligible for permanent certification, a carrier must have been furnishing local service (and continuously operating, except as to interruptions of service over which the carrier had no control) under a temporary certificate from January 1, 1953, to the date of its application, which must be filed within 120 days after enactment of the legislation; (2) the eligible terminal and intermediate points are those between which the carrier so continuously operated between the date

(Continued on page 82)



Challenge for Progress

Opportunities and problems for local carriers after 10 years of growth

By JOHN F. FLOBERG
Chairman, Conference of Local Airlines

THE challenge which the local service airlines face today is no less in magnitude than that which they faced up until a month ago —but it is considerably more wholesome and inspiring.

No longer may their very existence be challenged. No longer may their energies be diverted by a day to day fight for the right to render to the travel public the service which their rising patronage has proved that that public demands. No longer need they wonder from day to day whether they will even be allowed the opportunity to try to render that service.

The provisions of H. R. 2225, which was finally sent to the White House by the Congress on May 12, 1955 and which was signed into law by the President on May 19, 1955, guarantees the local service airlines the permanence which they have long sought and long merited. No longer harassed by the periodic necessity of re-proving every few years their fitness, willingness, and ability to furnish the service which they likewise had to re-demonstrate repetitiously that the public convenience and necessity required, they can now buckle down to the business of furnishing that service with an enthusiasm, efficiency, and economy that the heretofore tenuous nature of their existence made impossible.

That is the challenge which they

Local Service Airline Growth, Revenues Years 1945 through 1954

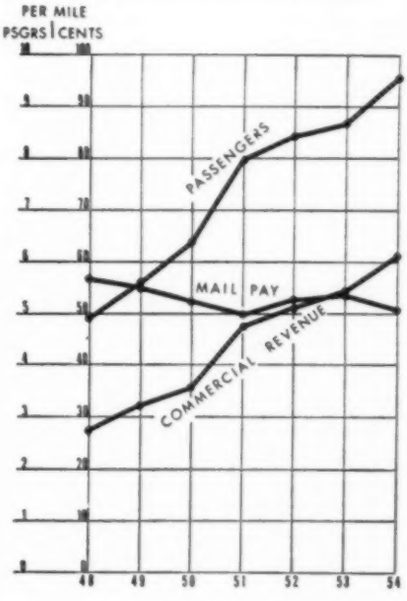
Year	Local Service Airline Revenue: Passenger Amount	Passenger % of Total	Total Non-Mail Amount	Total Non-Mail % of Total	Mail Pay Amount	Mail Pay % of Total
1945	$ 64,701	45.0	$ 65,874	45.8	$ 77,890	54.2
1946	314,638	29.2	348,903	32.4	728,179	67.6
1948	4,666,549	32.9	4,996,550	35.2	9,207,621	64.8
1949	7,355,366	35.0	7,876,031	37.5	13,132,690	62.5
1950	10,196,781	37.6	11,393,129	42.0	15,741,612	58.0
1951	15,757,568	43.9	17,338,545	48.3	18,569,578	51.7
1952	19,172,025	46.6	20,573,899	50.0	20,602,272	50.0
1953	22,663,146	46.7	24,333,992	50.2	24,153,000	49.8
1954	27,673,195	50.6	29,821,463	54.5	24,893,753	45.5

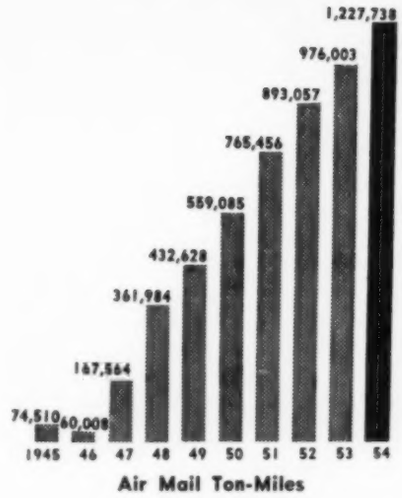
Local Service Airline Growth, Operations Years 1945 through 1954

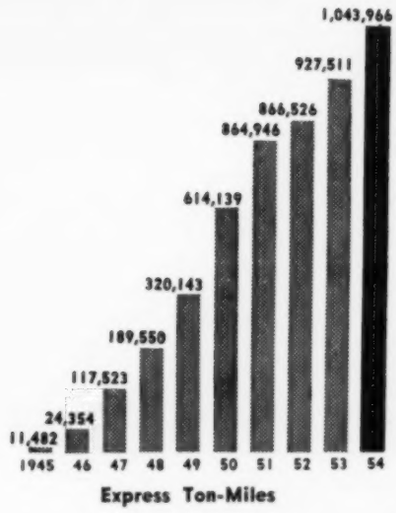
Year	Revenue Miles	Revenue Passengers	Revenue Passenger Miles (000)	Passenger Load Factor (%)	Revenue Ton Miles (000)	Ton Mile Util. Factor (%)
1945	310,783	4,452	1,312	52.76	136	42.50
1946	1,287,971	25,118	6,812	37.92	637	41.35
1947	8,354,787	236,997	46,990	30.08	4,666	31.93
1948	16,335,284	427,276	88,937	27.35	9,026	29.01
1949	24,208,377	683,601	136,643	28.51	14,318	30.98
1950	33,552,214	983,205	199,612	33.02	21,344	30.90
1951	37,797,136	1,462,083	291,296	38.20	30,709	35.30
1952	40,697,348	1,703,730	336,919	38.64	35,131	35.69
1953	45,085,915	1,999,867	387,060	39.47	39,645	35.67
1954	48,447,951	2,423,432	461,736	44.59	47,162	40.00

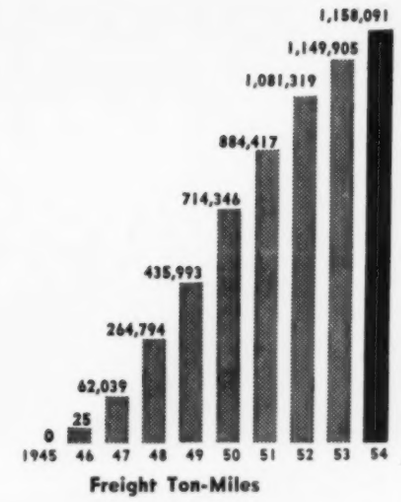
—(Ray & Ray Compilation)

PROGRESS—14 LOCAL AIRLINES









confidently face today. And they should be confident.

Last year nearly 2,500,000 passengers rode in the aircraft of the local carriers. This year the figure may reach 3,000,000. When one realizes that the figure was below 1,000,000 as recently as 1950, one can see the phenomenal rate of growth that has taken place in the acceptance of this type of service.

Last year the commercial revenues of the local service airlines were over $27,000,000 when as recently as 1950 they were only $10,000,000. In 1955 they will certainly pass $30,000,000 and they may reach $35,000,000.

Last year the revenues from express and freight passed $1,000,000 when as recently as 1949 they were only one quarter that amount.

In 1954 the local service airlines constituted a $53,000,000 industry. This may be contrasted with the 1946 volume of business of under $2,000,000, the 1947 volume of about $7,000,000 and the 1950 volume of about $27,000,000.

Generally speaking, 1954 represented local carrier progress over 1953 by a factor of 20%, and 1955 will probably represent further progress over 1954 by a factor of more than 25%.

Possibly the most significant development within the air transport industry, in so far as it affects the prospects of the local service airlines, has been the rapid acceptance by the trunk airlines of the contribution which the locals could make to the prosperity of the trunks. Originally this view was confined pretty much to a narrow appreciation of feeder traffic in the strictest sense, and that particular feature of local air service remains paramount in most trunks' considerations today.

As the equipment of the trunks, however, has grown in size, capacity, and cost and as the route patterns and the operational techniques of the trunks have tended to furnish better and better service to the large cities and the long haul passengers, the trunk airlines have begun to appreciate the really significant contribution which the local airlines can make by relieving the trunks of their obligation of serving many intermediate and small sized cities. In some quarters this appreciation has been slow to mature, but in others it has been grasped quickly and prosecuted diligently for the benefit of all concerned — the trunk airline in question, the local service airlines, the long haul passengers, the short haul passenger — and the payer of the subsidy checks to the subsidized carriers.

The Civil Aeronautics Board deserves its share of the credit for cooperating in this forward-looking step in the development of our air transport industry. On numerous occasions in the last year or two the Board has acquiesced in the suspension of service at intermediate or small sized cities by trunk carriers in favor of local carriers.

The vastly improved service which local carriers have been able to render to the populations of such cities and the economic penalties which have been lifted from the shoulders of the trunk carriers, which have thereby been able to concentrate their best efforts on improving their longer haul service, as a result of this course of decisions has been a substantial contribution to the air transport industry as a whole.

Probably the major problem to be solved by the local carriers in the next

(Continued on page 56)

Local Service Airlines Operating Expenses
Years 1945 through 1954

Year	Direct Aircraft Expense: Flying Operations	Direct Aircraft Expense: Maintenance—Flight Equip.	Direct Aircraft Expense: Depreciation—Flight Equip.	Direct Aircraft Expense: Total	Ground and Indirect Expense	Total Expense
1945	$ 56,415	$ 37,139	$ 16,517	$ 110,071	$ 117,222	$ 227,293
1946	268,304	187,430	107,600	563,334	640,040	1,203,374
1947	1,883,686	1,115,027	854,848	3,853,561	4,123,983	7,977,544
1948	4,134,962	2,072,832	1,303,563	7,511,357	6,995,512	14,506,869
1949	6,280,727	3,147,538	1,910,785	11,339,050	10,216,991	21,556,041
1950	8,422,726	3,463,246	1,492,366	13,378,338	13,731,864	27,110,202
1951	10,678,202	4,211,381	1,596,032	16,485,615	18,541,338	35,026,953
1952	13,116,658	5,351,865	2,070,486	20,539,009	21,970,066	42,509,075
1953	15,430,335	6,354,124	2,422,092	24,206,551	25,614,810	49,821,361
1954	17,246,089	5,950,087	1,893,201	25,089,377	28,016,163	53,105,540

Local Service Airline Revenues and Expenses
Cents Per Revenue Mile
Years 1945 through 1954

Year	Revenues: Passenger	Revenues: Total Non-Mail	Revenues: Mail Pay	Revenues: Total	Total Expense	Break Even Need
1945	20.82	21.20	25.06	46.26	73.14	51.94
1946	24.43	27.09	56.54	83.63	93.43	66.34
1947	27.29	29.55	69.37	98.92	95.48	65.93
1948	28.57	30.58	56.37	86.95	88.81	58.23
1949	30.38	32.53	54.25	86.78	89.04	56.51
1950	30.39	33.95	46.92	80.87	80.80	46.85
1951	41.69	45.87	49.13	95.00	92.67	46.80
1952	47.11	50.56	50.62	101.18	104.45	53.89
1953	50.27	53.97	53.57	107.54	110.50	56.53
1954	57.12	61.56	51.38	112.94	109.61	48.05

—(Ray & Ray Compilation)

First 40-passenger Convair 240 to be operated by Mohawk Airlines is shown at left being readied for its first schedule around July 1. With three Convairs, Mohawk becomes the first local carrier to use cabin pressurization.
—(Mohawk Photo by Bob Dolivo.)

Convairs for Mohawk

By ROBERT E. PEACH
President, Mohawk Airlines

BECAUSE our airline has reached the point of diminishing returns in operating DC-3 transports, we have purchased three modern Convair 240 airliners. We will operate them with our DC-3's in a mixed fleet. The first Convair will begin operations on our routes in early July.

That Mohawk has achieved maximum efficiency in the scheduled operation of its fleet of 10 DC-3's is indicated by our record for 1954, of which the following are highlights:

1. Highest passenger load factor in the local service industry — 62.1% on a 21-seat basis, 46.4% on a 28-seat basis.

2. Attainment of 93-cent-per-mile commercial revenue — highest ever obtained with a DC-3 fleet except under wartime priorities.

3. Reduction of break-even subsidy need to a new local service record low of 19.7 cents per mile — a dollar reduction of 30%.

As our vice president of operations, Carl A. Benscoter, puts it: "We have squeezed every bit of cubic capacity out of the DC-3 cabin — most of it being used by revenue passengers and cargo daily. DC-3 costs can only go one way — higher — with increasing obsolescence of the aircraft, a diminishing surplus parts market, rising labor costs and very few yet unexplored DC-3 operating techniques."

Critical DC-3 Load Problem

In short, our problem of providing more seat capacity on daily flights over certain route segments became an urgent problem early in 1955. It had been a very serious problem months before. At that time, we modified our DC-3's to seat 28 persons. But DC-3 gross load limitations demand careful dispatching and operating techniques in order to carry 28 passengers with instrument weather fuel requirements, particularly on Mohawk's highest density passenger routes in and out of the New York City area. Operating experience over the 140-mile New York-Binghamton and the 180-mile New York-Utica segments has indicated better than 85% reliability of use of the 27th and 28th seats and 100% reliability of use of 26 DC-3 seats. However, it has necessitated more frequent and less economical fueling. The need for increased gross load capacity becomes more acute when it is realized that on both these segments — and on several others — recent average monthly loads have been as high as 24 occupied seats, or an actual load factor of 85.7%.

Mohawk's three Convairs were originally but only briefly operated in China by General Claire Chennault's Civil Air Transport Company. They were confiscated and stored by the Communists but regained last year and returned to San Diego. Mohawk bought them for about $300,000 per plane. Grand Central Aircraft in Glendale modified them for Mohawk.
—(Mohawk Photo.)

For example, the most recent weekly load factor reports available for the last week in April, 1955, indicate that on an actual 29-seat basis a 70% load factor (generally considered optimum for economical short-haul operation) was exceeded on 28 separate segments of Mohawk's system. During the same week, 16 extra sections were operated at an actual average load factor of 50%. This not only illustrates the seriousness of our problem but also shows how it is intensified when trying to satisfy peak-load one-way demands with extra-section aircraft. If the Convair had been in operation that same week, its additional capacity would have handled the peak demands without operating empty return flights.

But a decision to acquire Convair 240's was not an overnight or quickly-conceived notion. Our traffic problem was first recognized two years ago. At that time, Mohawk engaged a well-known consultant to appraise the use of larger aircraft over segments of our system. His study considered six different transports. Theoretical operations plans and schedules were drafted, operating expenses carefully explored and the volume of traffic required to support the additional capital investment and increased expenses was determined. From this extensive analysis, Mohawk was able not only to determine the type of aircraft needed but we established the timing for our project in relation to actual and anticipated traffic volume.

Our biggest problem in DC-3 replacement has been boiled down to one of timing and economics. We have been working single-mindedly toward our equipment goal for several years.

Bargain Convairs at $300,000

Once we determined the Convair 240 as our choice, we then had to find a bargain because of limited financial resources. It turned out that General Claire Chennault had flown six new Convair 240's to the Orient at the time American Airlines began receiving its original Convairs. They had been operated for an average of less than 250 flying hours each by Chennault's Civil Air Transport Company (CAT) before they were confiscated by the Communists and stored at Hong Kong during several years of litigation. CAT was successful in regaining 5 of the Convairs and they were delivered back to the Convair factory at San Diego. They were then completely inventoried, inspected and preserved by Convair and then ferried to Glendale, California, for storage. Two were sold to oil companies. Mohawk obtained a right of first refusal on the remaining three Convairs in the late fall of 1954.

First of four Martin Executives to be operated by Allegheny Airlines began schedules June 1 between Pittsburgh and Atlantic City via Johnstown, Harrisburgh and Philadelphia. —(Allegheny Photo.)

MARTINS FOR ALLEGHENY

By LESLIE O. BARNES
President, Allegheny Airlines

ALLEGHENY Airlines' decision to secure larger equipment for the company's services in the Middle Atlantic Area was dictated by two basic considerations.

(1) The inability to meet traffic demand with a 24-passenger aircraft on a high percentage of Allegheny's route segments for extended periods.

(2) The relatively small margin between operating costs of the DC-3 and the maximum revenue expectancy of a 24-passenger aircraft in local service operations.

In 1954, Allegheny increased its scheduled miles 18% and developed 35% additional passenger miles as compared with 1953. The company's average load factor for 1954 was about 50%.

As is the case with a number of the local service airlines, Allegheny's average system load factor tends to obscure the traffic volume on the company's more productive segments. During 1954, a high percentage of Allegheny's segments averaged load factors of more than 60% for extended periods. Individual flights, even with three or more intermediate stops, averaged 70% to 75% load factors for periods ranging from seven to twelve months.

While no airline can tool wholly for peak periods and some excess demand should be expected, it is dangerous philosophy to believe that substantial un-met demand over extended periods can be disregarded. Although maximum load factors vary in accordance with the number of stations served by a local service airline and the average passenger trip length. Allegheny is convinced that on its system too many customers are being turned away when flights or segments average 60% load factor over a 30-day period and that a 70% load factor reflects inadequate and even poor service.

If an airline is to have a healthy growth, it must meet a reasonably high percentage of the demand created.

Martin Executive features integral passenger ramp at rear of 40-passenger cabin.

Under 60 to 70% load factor conditions over extended periods, the problem boils down to a choice of two solutions: Should the situation be met with two DC-3's, with two crews, two operations and two schedules or should it be met with larger equipment?

After considerable research over the last 12 to 18 months, Allegheny has concluded that the answer is in larger equipment. While many studies on comparative costs of the DC-3 versus several available aircraft have been made by a number of agencies, Allegheny has concluded that on its system the seventeen passengers required to meet operating costs on the DC-3 represents a load factor inconsistent with good passenger service and sound future development of the company.

While Allegheny is aware of the public relations and sales appeal of faster and more modern equipment, the company's decision in this instance was primarily a matter of keeping pace with its own growth and development. ★ ★ ★

Informational conferences were held with CAB staff members and actual purchase was expedited when it became apparent that the government of Pakistan had authorized a firm offer which was at or above our option price.

Purchase involved a capital commitment of $1,100,000 for Mohawk — by far the most extensive single financial commitment we had yet undertaken as a local carrier. The Convairs will be placed into scheduled line service, complete with new radio and instrumentation and modified to Mohawk's standards, for less than $300,000 per aircraft. Cost of spare engines, propellers, radio and parts totalled another $115,000. Training of pilots, maintenance and station personnel cost $50,000. Then there are additional miscellaneous items, such as ramp and shop equipment and various ground facility modifications which will cost another $50,000.

Loans, Stock and Helicopter Buy Convair

Financing this Convair purchase and related requirements posed a serious problem. It involved bank loans, raising new equity capital and selling our S-55 helicopter. But we made the hurdle. Long-term financing was obtained through the Chase Manhattan Bank involving a $1,250,000 line of credit. But this was contingent on the retirement of all other debts of Mohawk — plus the raising of $450,000 in new capital. To do this, we sold the helicopter and filed an SEC registration of 92,500 shares of stock. The stock was subscribed almost immediately by existing stockholders at $3 per share and employe enthusiasm over the Convairs resulted in nearly unanimous pro rata subscription in proportion to their existing holdings (our stock is not listed and is held rather closely by industries and individuals in the communities we serve — its book value is about $3.30 a share and it is currently quoted at about $5.50 a share as a result of last year's earnings of $161,000 or 52 cents per share).

New engine warranties are being extended to Mohawk by Pratt & Whitney on the engines now installed in the aircraft and Mohawk has purchased a supply of factory-new CA-18 engines for spares. Curtiss reversible propellers were returned to the factory to incorporate latest modifications.

Contracts were placed on March 8, 1955, with Grand Central Aircraft in Glendale, California, to comply with various mandatory AD notes. Modifications include the structural replacement of the horizontal tail surface with a factory kit, the de-preserving and cleaning of the aircraft, painting, overhauling of instruments, overhaul and modification of the pressurization system, complete inspection and overhaul of the electrical and hydraulic systems. Mohawk does not plan to modify the aircraft to increase gross take-off load limits at this time, although we have installed the Menasco heavy-duty nose gear.

The first aircraft was test flown and delivered without major discrepancy on May 7, two days ahead of schedule. Kenneth Atwell, Mohawk supervisor of aircraft overhaul, has been supervising the modification. Maintenance employe training has been conducted along with the modification schedule, each Mohawk crew chief and inspector spending a minimum of 10 working days actually working on the modifications at Grand Central. Other maintenance personnel have undergone training courses at P&W, Curtiss and Convair. Our instrument shop foreman followed the first set of Convair instruments as they passed through the shop at Glendale. We conducted a two-week pilot ground school at the Convair plant and our two senior line captains and company check pilots entered Convair flight training on May 9. Subsequent ground school and flight instruction is being conducted by Convair at our home base in Ithaca.

All Mohawk Convair delivery flights are planned as CAM's, carrying military charter passengers from the West to the East Coast. The first of these took place on May 24, after which this first Convair was placed in pilot and maintenance training. The second Convair, to be delivered June 10, will be used to tour Mohawk's cities for ground personnel training and public relations use. The third aircraft will be delivered in time to supplement Mohawk's summer schedule frequency on July 1, in time to take advantage of holiday weekend traffic.

DC-3 Saturation

DURING January, 1955, which was its weakest traffic month, Mohawk Airlines averaged 18 daily capacity flights with DC-3's. A total of 527 DC-3 flights during the same month carried 20 or more seats filled. A Mohawk tabulation which indicates traffic saturation with its fleet of ten 28-passenger DC-3's in January follows:

No. Seats Filled	No. of Flights
20	72
21	97
22	54
23	36
24	52
25	51
26	56
27	39
28	70

During this same month, there were 289 flights on which excess passenger capacity of the Convair would have developed additional revenue in Mohawk's weakest traffic month, as follows:

	Flights
Binghamton-New York	150
Utica-New York	80
Utica-Syracuse	31
Ithaca-Binghamton	20
Syracuse-Rochester	5
Rochester-Buffalo	2
Watertown-Utica	1

Choice of Convair Explained

But before going into plans for Convair operations on our local service system, let's consider a few of the many reasons why we selected the Convair 240. In the first place, the three we have bought are practically brand-new airplanes. The fact that they were delivered with the original 240's ordered by American Airlines was an important factor to us, in view of the potential availability of American's Convair fleet for local service use in the future. The Convair 240 can carry 40 passengers on our routes under all weather conditions in standard seating configuration.

Cabin pressurization, although expensive to maintain, will substantially improve our completion factor in and out of New York City. This is possible because we can climb faster to higher cruising altitudes to avoid traffic delays, maintain higher en route altitudes and make more rapid descent to approach altitudes without passenger discomfort or without losing descent priority — a factor of growing importance in this crowded air space. Flight time thus saved will more than off-set pressurization costs.

Passenger acceptance is a factor because in our area the public has already accepted the 240 as standard short-haul equipment on American's schedules. The familiarity of airport, station and maintenance personnel with the Convair in our cities should furnish us an operating advantage.

We are scheduling Convair intermediate stops at 3 mins. This compares with 2 mins. for DC-3 operations. The Convair's level floor will speed passenger handling (the DC-3's slanting floor is a sales deterrent, a passenger hazard and a delaying factor in speeding operations).

The Convair offers expandability of about the same proportion as the DC-3, which we expanded from 21 to 28 seats.

But, while we feel the Convair 240 is our best available transport, we realize it does not solve the problem of the need for a short-haul aircraft which will carry maximum loads over short distances (the Convair has a 40,500-lb. gross take-off limit but its landing

(Continued on page 54)

HIGHER PASSENGER LOADS FOR LOCAL CARRIERS are illustrated by this unposed Central Airlines photo showing 8 passengers boarding a Little Rock flight and 16 passengers boarding a Dallas-Ft. Worth flight at Fort Smith, Arkansas, on a recent afternoon when flights from Tulsa and Kansas City interconnected. In April, 1955, Central boarded 982 passengers at Ft. Smith — this city of only 50,000 population becoming the leading traffic generating point on the Central system only 11 months after the start of service.

Local Traffic at 362 Cities in 1954

FROM Civil Aeronautics Board reports, FLIGHT MAGAZINE has compiled local service airline aircraft departures and the number of passengers boarded at each of 362 cities (some cities are jointly served by a single airport) served by local carriers during the calendar year of 1954. This is the first such compilation ever made in this form.

Topping the list of cities boarding local airline passengers are **Chicago**, New York, Dallas, Milwaukee and San Francisco, in that order. Milwaukee, which ranked fourth in passengers, has more local airline departures than any city in the U. S. — 9,591 in 1954 as compared to 9,205 at Chicago, which boarded 123,911 passengers to lead the country.

In the same compilation, FLIGHT MAGAZINE has also listed the 50 leading cities served exclusively by local service airlines, ranking them in order by passengers boarded. These fifty cities are led by Utica, N. Y., Monterey, Calif., and Ithaca, N. Y., each of which boarded more than 20,000 passengers in 1954 (see page 36).

In this same study, we have analyzed the 1954 passenger boardings per aircraft departure. Thus we obtain the ranking of the first 50 cities served exclusively by local airlines on the basis of passengers per departing airplane (see table on page 36). The nation's top 5 cities in this ranking are Port Angeles, Washington; Eureka, California; Monterey, California; McAllen, Texas, and Cape May, N. J.

Passengers per departure gives a fair measure of a city's demand for air service — under normal scheduling conditions. As frequency of departures drops, the passengers per departure tend to rise, other factors being equal. However, this can be misleading (for example, Harlingen, Texas, had 2 round trips daily during 1954 for 4 daily departures but 2 of the flights terminated only 36 miles away at McAllen which made them of little value to Harlingen).

1954 Record of Boarding Passengers at Cities Served by Local Service Airlines

(Ranked in order by number of boarding passengers; compiled by FLIGHT MAGAZINE from CAB records)

Rank	City	Aircraft Departures	Passengers Boarded
1.	Chicago, Ill. (2, 8)	9,205	123,911
2.	New York, N. Y. (2)	4,090	65,640
3.	Dallas, Texas (2, 8)	7,650	58,637
4.	Milwaukee, Wisc. (2, 8)	9,591	53,101
5.	San Francisco, Calif. (2)	3,380	47,320
6.	Pittsburgh, Pa. (2, 8)	4,831	46,607
7.	Newark, N. J. (2)	3,168	41,862
8.	Cincinnati, Ohio (2, 8)	3,647	39,905
9.	Phoenix, Ariz. (2, 8)	3,764	39,432
10.	Houston, Texas (2, 8)	4,445	38,037
11.	Tri-Cities, Tenn. (2, 7)	6,944	34,928
12.	St. Louis, Mo. (2)	3,801	32,804
13.	Richmond, Va.	5,345	29,000
14.	Los Angeles, Calif (2, 8)	1,983	27,690
15.	Minneapolis, Minn. (2, 7)	3,722	26,542
16.	Utica, N. Y. (1, 7)	5,411	25,490
17.	Atlanta, Ga. (2)	2,613	25,482
18.	Roanoke, Va.	6,297	25,427
19.	Seattle, Wash. (2)	2,668	24,960
20.	Portland, Ore. (2)	3,194	24,698
21.	Denver, Colo. (2)	2,240	24,585
22.	Charlotte, N. C. (2, 8)	3,033	23,074
23.	Monterey, Calif. (1)	2,567	22,361
24.	Binghamton, N. Y. (7)	4,673	22,082
25.	Ithaca, N. Y. (1)	4,424	20,987
26.	Scranton, Pa. (7)	4,567	20,797
27.	Cleveland, Ohio (2, 8)	2,243	20,446
28.	Louisville, Ky. (2)	1,780	20,203
29.	Memphis, Tenn. (2, 8)	2,771	19,982
30.	Ft. Worth, Tex. (2, 8)	8,171	19,396
31.	Eureka, Calif. (1, 7)	2,140	19,364
32.	Austin, Tex. (8)	4,368	19,090
33.	Las Vegas, Nev. (2)	1,856	19,013
34.	Washington, D. C. (2)	1,437	18,540
35.	Madison, Wisc.	3,369	18,254
36.	Midland, Tex. (7)	2,765	18,101
37.	Buffalo, N. Y. (2, 8)	2,034	17,346
38.	Huntington, W. Va. (8, 7)	3,796	17,259
39.	Springfield, Ill.	4,932	16,473
40.	Norfolk, Va.	2,554	16,290
41.	Williamsport, Pa.	3,984	16,233
42.	Medford, Ore. (2, 8)	2,895	15,722
43.	Albuquerque, N. M. (2, 8)	1,515	15,216
44.	Indianapolis, Ind. (2, 8)	3,363	14,640
45.	Abilene, Tex. (1)	3,907	14,020
46.	Atlantic City, N. J.	2,051	13,933
47.	Green Bay, Wisc. (1)	5,570	13,863
48.	Duluth, Minn. (1, 7)	2,854	13,717
49.	Fayetteville, N. C. (1)	3,550	13,564
50.	Lexington, Ky. (7)	5,353	13,318
51.	Erie, Pa.	3,250	12,914

(1) Indicates city served exclusively by local service airline.
(2) Indicates city where substantial traffic is exchanged with trunk airline (connecting traffic).
(3) Service provided on seasonal basis.
(4) Data for less than complete year, service inaugurated during 1954.
(5) Data for less than complete year, service suspended during 1954.
(6) Major service pattern change during year, will reflect in substantial added traffic during 1955.
(7) City named is one of two or more cities designated for service through joint airport.
(8) City served by more than one local service airline.
(9) Seasonal helicopter experimental service.

(Continued on next page)

50 Leading Cities Served Exclusively by Local Service Airlines

(In Order by Passengers Boarded Per Aircraft Departure During 1954; Compiled by FLIGHT MAGAZINE from CAB records.)

Rank	City	Airline Serving	Aircraft Departures	Passengers Boarded	Passengers per Departure
1.	Port Angeles, Wash.	West Coast	679	6,773	9.97
2.	Eureka, Calif.	Southwest	2,140	19,364	9.05
3.	Monterey, Calif.	Southwest	2,567	22,361	8.71
4.	McAllen, Texas	Trans-Texas	715	5,092	7.12
5.	Cape May, N. J.	Allegheny	153	912	5.96
6.	North Bend, Ore.	West Coast	2,103	10,676	5.08
7.	Duluth, Minn.	North Central	2,854	13,717	4.81
8.	El Centro, Calif.	Bonanza	1,456	6,944	4.74
9.	Ithaca, N. Y.	Mohawk	4,424	20,987	4.73
10.	Utica, N. Y.	Mohawk	5,411	25,490	4.71
11.	Morehead City, N. C.	Piedmont	108	503	4.66
12.	Bluefield, W. Va.	Piedmont	1,143	5,102	4.46
13.	International Falls, Minn.	North Central	411	1,762	4.29
14.	Temple, Texas	Pioneer	1,397	5,877	4.21
15.	Santa Barbara, Calif.	Southwest	2,443	10,178	4.17
16.	Lewiston, Idaho	West Coast	1,873	7,753	4.14
17.	Geneva, N. Y.	Mohawk	2,012	8,140	4.05
18.	Pasco, Wash.	West Coast	2,253	8,627	3.83
19.	Fayetteville, N. C.	Piedmont	3,550	13,564	3.82
20.	Yuma, Ariz.	Bonanza	1,461	5,489	3.76
21.	Champaign, Ill.	Ozark	3,406	12,519	3.68
22.	Lafayette, Ind.	Lake Central	1,357	4,905	3.61
23.	Abilene, Texas	Pioneer	3,907	14,020	3.59
24.	Flagstaff, Ariz.	Frontier	2,039	7,288	3.57
25.	Redding, Calif.	Southwest	1,393	4,968	3.57
26.	Hoquiam, Wash.	West Coast	936	3,178	3.40
27.	Oshkosh, Wisc.	North Central	2,725	9,201	3.38
28.	Columbia, Mo.	Ozark	1,153	3,720	3.23
29.	Natchez, Miss.	Southern	1,961	6,207	3.17
30.	Wenatchee, Wash.	West Coast	1,335	4,119	3.09
31.	Cody, Wyo.	Frontier	755	2,291	3.03
32.	Salisbury, Md.	Allegheny	772	2,321	3.01
33.	Hagerstown, Md.	Allegheny	1,282	3,796	2.96
34.	Harlingen, Texas	Trans-Texas	1,429	4,175	2.92
35.	Houghton, Mich.	North Central	654	1,902	2.91
36.	Bradford, Pa.	Allegheny	3,899	11,282	2.89
37.	Phillipsburg, Pa.	Allegheny	1,041	2,973	2.86
38.	Astoria, Wash.	West Coast	961	2,741	2.85
39.	Myrtle Beach, S. C.	Piedmont	702	1,985	2.83
40.	Pullman, Wash.	West Coast	985	2,751	2.79
41.	Dover, Del.	Allegheny	621	1,653	2.66
42.	Durango, Colo.	Frontier	1,554	4,048	2.60
43.	Greenville, Miss.	Southern	2,140	5,552	2.59
44.	Decatur, Ill.	Ozark	3,620	9,352	2.58
45.	Chico, Calif.	Southwest	1,901	4,884	2.57
46.	Hibbing, Minn.	North Central	1,153	2,955	2.56
47.	Columbus, Miss.	Southern	2,335	5,840	2.50
48.	San Luis Obispo, Calif.	Southwest	673	1,680	2.50
49.	Crescent City, Calif.	Southwest	1,757	4,379	2.49
50.	Green Bay, Wisc.	North Central	5,570	13,863	2.48

PASSENGER BOARDINGS

(Continued from page 35)

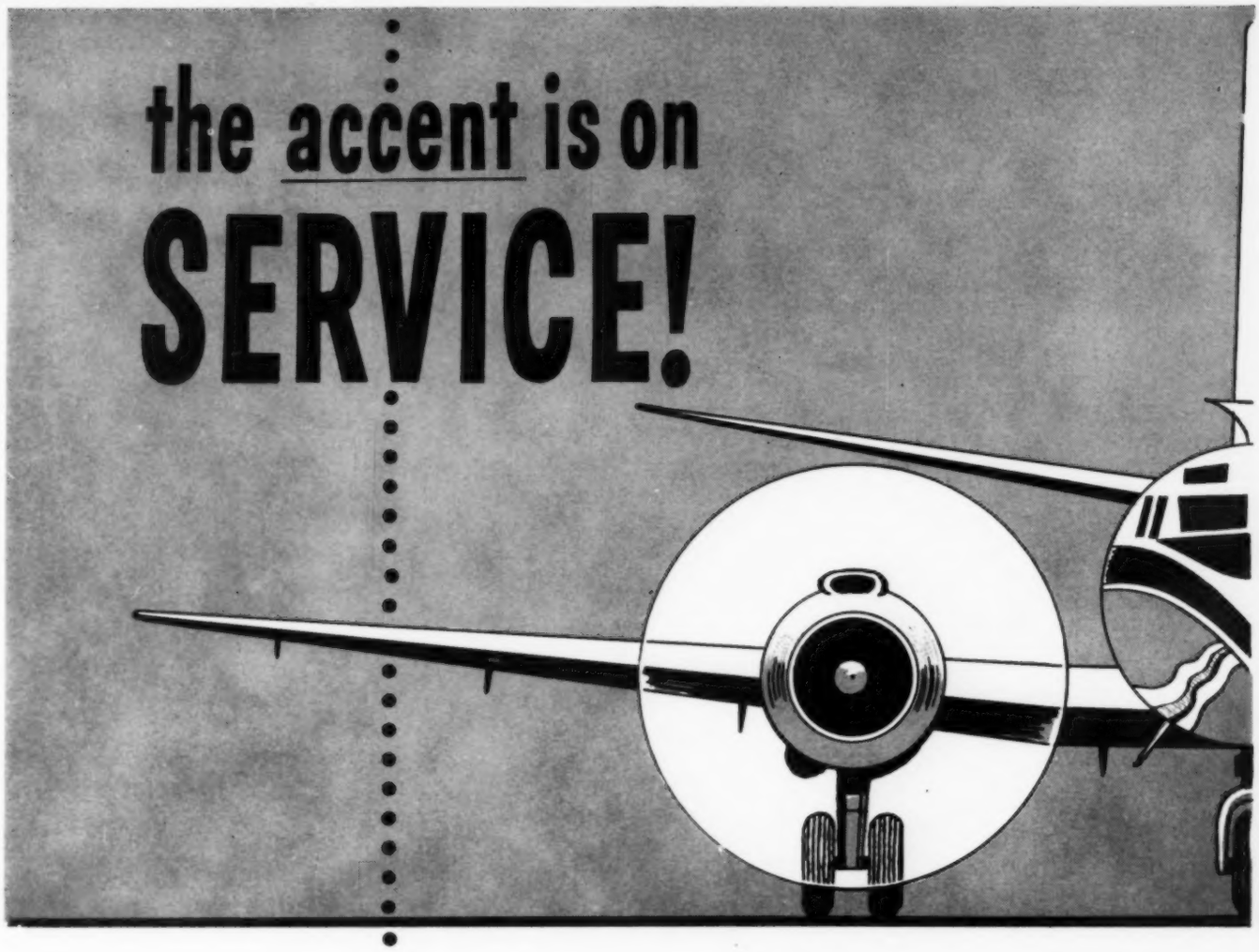
Rank	City	Aircraft Departures	Passengers Boarded
52.	Charleston, W. Va.	3,038	12,705
53.	Champaign, Ill. (1, 7)	3,406	12,519
54.	Salt Lake City, Utah (2)	1,442	11,307
55.	Bradford, Pa. (8, 1)	3,899	11,282
56.	Philadelphia, Pa. (2, 7)	1,850	10,973
57.	North Bend, Ore. (1, 7)	2,103	10,676
58.	San Angelo, Tex. (8)	3,943	10,523
59.	Raleigh, N. C. (2, 7)	2,867	10,463
60.	Elmira, N. Y. (7)	3,123	10,393
61.	Albany, N. Y.	2,595	10,389
62.	Santa Barbara, Calif. (1)	2,443	10,178
63.	Boston, Mass. (2, 4)	1,188	10,110
64.	Lubbock, Tex.	3,073	9,965
65.	Beaumont, Tex. (2, 7)	2,099	9,874
66.	Boise, Ida.	1,423	9,680
67.	Sacramento, Calif.	2,014	9,615
68.	Knoxville, Tenn. (2)	1,041	9,470
69.	Columbus, Ohio (2)	2,237	9,468
70.	Decatur, Ill. (1)	3,620	9,352
71.	Oshkosh, Wisc. (1)	2,725	9,201
72.	Davenport, Iowa (7)	1,994	8,832
73.	Pasco, Wash. (1, 7)	2,253	8,627
74.	Harrisburg, Pa.	2,556	8,517
75.	Peoria, Ill.,	2,446	8,427
76.	Johnstown, Pa. (1)	3,607	8,383
77.	Detroit, Mich. (2, 4)	1,010	8,283
78.	Yakima, Wash.	3,465	8,215
79.	Geneva, N. Y. (1, 4, 7)	2,012	8,140
80.	Wilmington, N. C.	1,975	8,008
81.	Grand Junction, Colo.	1,810	7,940
82.	Watertown, N. Y.	1,075	7,891
83.	San Antonio, Tex. (2)	2,533	7,764
84.	Lewiston, Wash. (1, 7)	1,873	7,753
85.	Jamestown, N. Y. (1)	3,052	7,706
86.	Syracuse, N. Y.	2,157	7,625
87.	Tulsa, Okla. (2, 8)	2,307	7,562
88.	Oakland, Calif. (2)	3,720	7,394
89.	Flagstaff, Ariz. (1)	2,039	7,288
90.	Jackson, Miss. (2)	2,315	7,150
91.	El Centro, Calif. (1)	1,456	6,944
92.	Farmington, N. M. (1)	3,019	6,889
93.	Grand Rapids, Mich.	2,708	6,771
94.	Port Angeles, Wash. (1)	679	6,773
95.	Lynchburg, Va. (1)	3,307	6,671
96.	Altoona, Pa. (1)	3,049	6,658
97.	Tyler, Tex.	5,182	6,565
98.	Amarillo, Tex. (2, 8)	1,382	6,552
99.	Spokane, Wash. (2)	1,448	6,546
100.	Wausau, Wisc. (1)	2,717	6,537
101.	Natchez, Miss. (1)	1,961	6,207
102.	Greensboro, N. C. (2, 7)	3,070	6,129
103.	Winston-Salem, N. C. (2)	2,676	6,105
104.	Rochester, N. Y.	2,367	6,089
105.	Ashville, N. C.	1,184	5,974
106.	Temple, Tex. (1)	1,397	5,877
107.	New Orleans, La. (2)	715	5,865
108.	South Bend, Ind.	1,704	5,858
109.	Shreveport, La. (2)	2,112	5,850
110.	Columbus, Miss. (1)	2,335	5,840
111.	Oklahoma City, Okla. (2)	2,059	5,643
112.	Parkersburg, W. Va.	1,675	5,594
113.	Corpus Christi, Tex.	2,129	5,552
114.	Greenville, Miss. (1)	2,140	5,552

(Continued on page 40)

Fifty Leading Cities Served Exclusively by Local Service Airlines

(Ranked in order by passengers boarded 1954; compiled by FLIGHT MAGAZINE from CAB records.)

Rank	City	Local Airline	Aircraft Departures	Passengers Boarded
1.	Utica, N. Y.	Mohawk	5,411	25,490
2.	Monterey, Calif.	Southwest	2,567	22,361
3.	Ithaca, N. Y.	Mohawk	4,424	20,987
4.	Eureka, Calif.	Southwest	2,140	19,364
5.	Abilene, Texas	Pioneer	3,907	14,020
6.	Green Bay, Wisc.	No. Central	5,570	13,863
7.	Duluth, Minn.	No. Central	2,854	13,717
8.	Fayetteville, N. C.	Piedmont	3,550	13,564
9.	Champaign, Ill.	Ozark	3,406	12,519
10.	Bradford, Pa.	Allegheny-Mohawk	3,899	11,282
11.	North Bend, Ore.	West Coast	2,103	10,676
12.	Santa Barbara, Calif.	Southwest	2,443	10,178
13.	Decatur, Ill.	Ozark	3,620	9,352
14.	Oshkosh, Wisc.	No. Central	2,725	9,201
15.	Pasco, Wash.	West Coast	2,253	8,627
16.	Johnstown, Pa.	Allegheny	3,607	8,383
17.	Auburn, N. Y.	Mohawk	2,012	*8,140
18.	Lewiston, Wash.	West Coast	1,873	7,753
19.	Jamestown, N. Y.	Allegheny	3,052	7,706
20.	Flagstaff, Ariz.	Frontier	2,039	7,288
21.	El Centro, Calif.	Bonanza	1,456	6,944
22.	Farmington, N. M.	Frontier	3,019	6,889
23.	Port Angeles, Wash.	West Coast	679	6,773
24.	Lynchburg, Va.	Piedmont	3,307	6,671
25.	Altoona, Pa.	Allegheny	3,049	6,658
26.	Wausau, Wisc.	No. Central	2,717	6,537
27.	Natchez, Miss.	Southern	1,961	6,207
28.	Temple, Texas	Pioneer	1,397	5,877
29.	Columbus, Miss.	Southern	2,335	5,840
30.	Greenville, Miss.	Southern	2,140	5,552
31.	Prescott, Ariz.	Bonanza-Frontier	3,444	5,508
32.	Yuma, Ariz.	Bonanza	1,461	5,489
33.	San Jose, Calif.	Southwest	2,207	5,241
34.	Bluefield, W. Va.	Piedmont	1,143	5,102
35.	McAllen, Texas	Trans-Texas	715	5,092
36.	Redding, Calif.	Southwest	1,393	4,968
37.	Lafayette, Ind.	Lake Central	1,357	4,905
38.	Chico, Calif.	Southwest	1,901	4,884
39.	Mansfield, Ohio	Lake Central	2,059	4,789
40.	Crescent City, Calif.	Southwest	1,757	4,379
41.	Roseburg, Wash.	West Coast	1,997	4,361
42.	Riverton, Wyo.	Frontier	2,142	4,243
43.	Janesville, Wisc.	No. Central	1,981	4,178
44.	Harlingen, Texas	Trans-Texas	1,429	4,175
45.	Wenatchee, Wash.	West Coast	1,335	4,119
46.	Durango, Colo.	Frontier	1,554	4,048
47.	Oxnard, Calif.	Southwest	1,643	3,977
48.	Franklin, Pa.	Allegheny	1,412	3,966
49.	Tuscaloosa, Ala.	Southern	2,022	3,959
50.	Gadsden, Ala.	Southern	2,014	3,867



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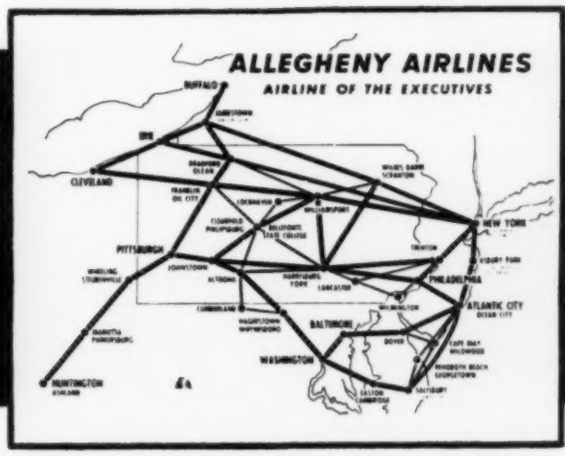
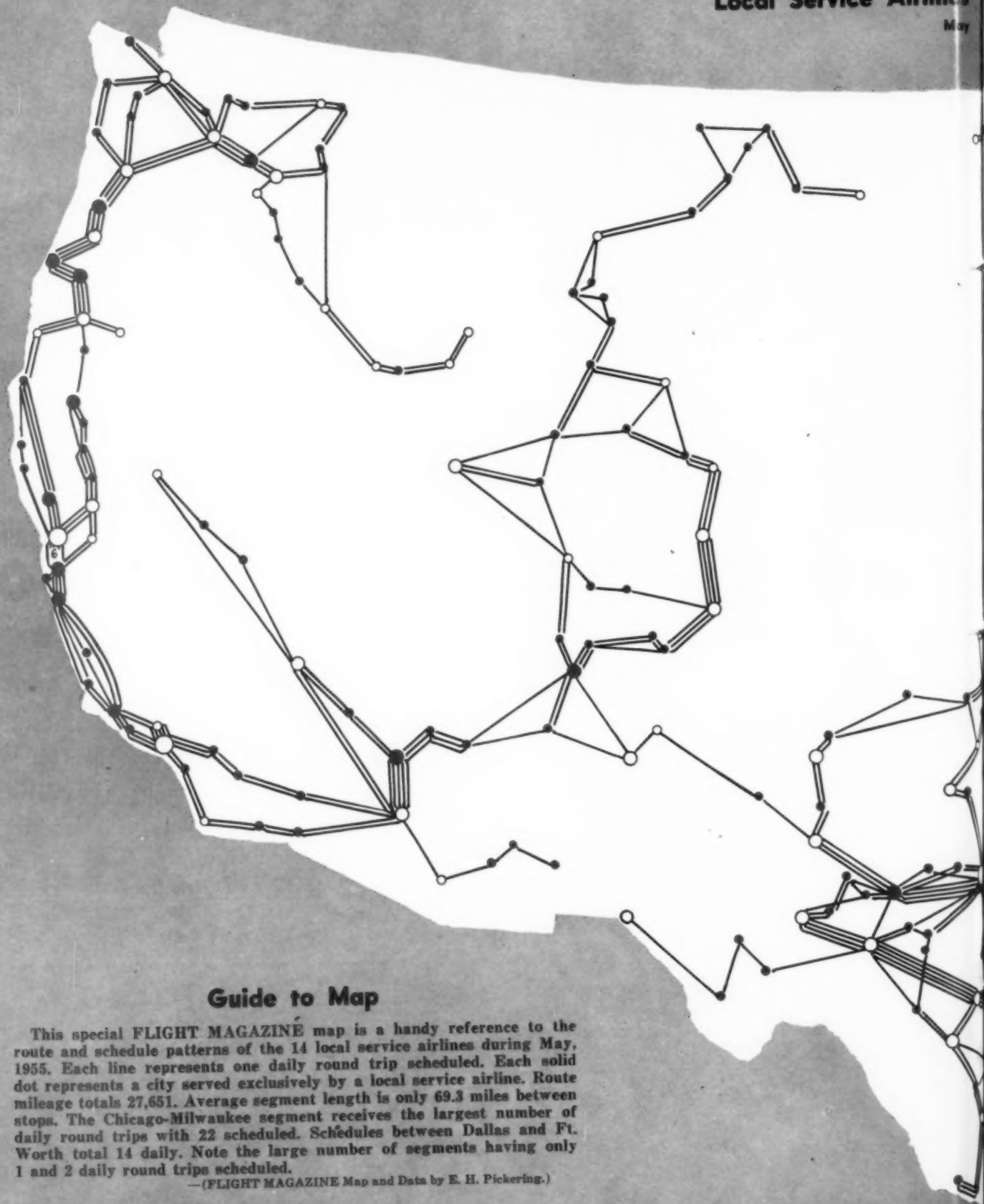




Guide to Map

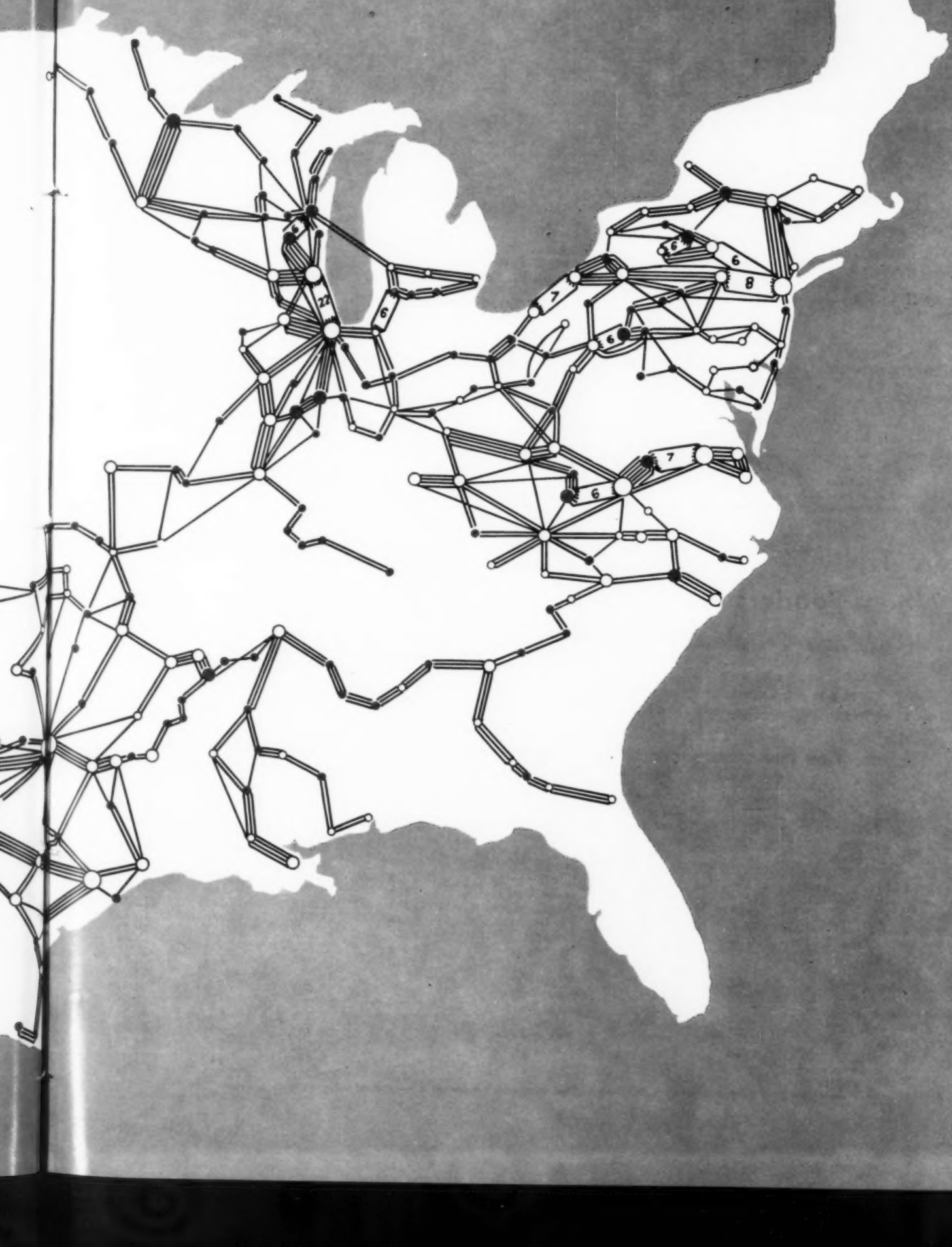
This special FLIGHT MAGAZINE map is a handy reference to the route and schedule patterns of the 14 local service airlines during May, 1955. Each line represents one daily round trip scheduled. Each solid dot represents a city served exclusively by a local service airline. Route mileage totals 27,651. Average segment length is only 69.3 miles between stops. The Chicago-Milwaukee segment receives the largest number of daily round trips with 22 scheduled. Schedules between Dallas and Ft. Worth total 14 daily. Note the large number of segments having only 1 and 2 daily round trips scheduled.

—(FLIGHT MAGAZINE Map and Data by E. H. Pickering.)

lines

May 1955

Route and Schedule Pattern



PASSENGER BOARDINGS

(Continued from page 36)

Rank	City	Aircraft Departures	Passengers Boarded
115.	Prescott, Ariz. (1, 8)	3,444	5,508
116.	Yuma, Ariz. (1)	1,461	5,489
117.	Billings, Mont. (2)	942	5,418
118.	Columbus, Ga.	1,819	5,384
119.	Valdosta, Ga.	1,812	5,354
120.	San Jose, Calif. (1)	2,207	5,241
121.	Waco, Tex.	1,411	5,229
122.	Bluefield, W. Va. (1, 4, 7)	1,143	5,102
123.	McAllen, Tex. (1, 7)	715	5,092
124.	Monroe, La.	1,059	5,053
125.	Redding, Calif. (1)	1,393	4,968
126.	Lafayette, Ind. (1)	1,357	4,905
127.	Chico, Calif. (1)	1,901	4,884
128.	Walla Walla, Wash.	2,159	4,867
129.	Mansfield, Ohio (1)	2,059	4,789
130.	Jacksonville, Fla. (2)	854	4,726
131.	Reno, Nev. (2)	358	4,700
132.	Cheyenne, Wyo.	2,004	4,582
133.	Little Rock, Ark. (2, 8, 6)	2,224	4,485
134.	Wichita, Kan. (2, 8)	1,072	4,448
135.	Birmingham, Ala.	2,026	4,433
136.	Crescent City, Calif. (1)	1,757	4,379
137.	Roseburg, Ore. (1)	1,997	4,361
138.	Longview, Texas (7)	3,553	4,287
139.	Riverton, Wyo. (1, 7)	2,142	4,243
140.	Pueblo, Colo.	2,364	4,215
141.	Janesville, Wisc. (1, 7)	1,981	4,178
142.	Harlingen, Texas (1, 7)	1,429	4,175
143.	Wenatchee, Wash. (1)	1,335	4,119
144.	Casper, Wyo.	1,455	4,060
145.	Durango, Colo. (1)	1,554	4,048
146.	Oxnard, Calif. (1, 7)	1,643	3,977
147.	Franklin, Pa. (1, 7)	1,412	3,966
148.	Tuscaloosa, Ala. (1)	2,022	3,959
149.	Eugene, Ore.	2,140	3,935
150.	Springfield, Mo.	1,282	3,909
151.	Gadsden, Ala. (1)	2,014	3,867
152.	Lawton, Okla. (7)	1,356	3,830
153.	Hagerstown, Md. (1)	1,282	3,796
154.	Rockford, Ill.	1,408	3,734
155.	Enid, Okla. (1)	2,713	3,732
156.	College Station, Texas (1, 3, 7)	2,783	3,721
157.	Columbia, Mo. (1)	1,153	3,720
158.	Texarkana, Ark. (7)	1,410	3,563
159.	Beckley, W. Va. (1)	1,990	3,495
160.	Santa Rosa, Calif. (1)	2,019	3,441
161.	San Diego, Calif.	1,403	3,426
162.	Ft. Smith, Ark. (4)	689	3,398
163.	Winslow, Ariz. (1)	1,811	3,283
164.	Marysville, Calif. (1)	1,899	3,279
165.	Newport News, Va. (7)	2,398	3,257
166.	Tucson, Ariz.	870	3,229
167.	Aberdeen, Wash. (7, 1)	936	3,178
168.	Gallup, N. M. (1)	1,421	3,162
169.	LaCrosse, Wisc. (1)	1,408	3,156
170.	Bartlesville, Okla. (8)	1,679	3,113
171.	Gulfport, Miss. (7)	955	3,072
172.	Joplin, Mo. (4)	1,362	3,060
173.	Eau Claire, Wisc. (1)	1,882	3,037
174.	Hot Springs, Ark. (4)	1,460	3,034
175.	Idaho Falls, Ida.	689	3,012
176.	Worcester, Mass.	1,711	3,007
177.	Rhinelander, Wisc. (1)	1,504	3,001
178.	Mobile, Ala.	660	2,983
179.	Cortez, Colo. (1)	1,317	2,976

(Continued on page 42)

The Effect on Passenger Generation of Substituting Local for Trunk Airline Service

City [1]	Quarter and Year of Substitution	Trunk Carrier Suspended	Local Carrier Susbsituted	Number of Enplaned Passengers: Last Year of Trunk Service	First Year of Local Service	Increase: Number	Increase: Per Cent
El Centro, Calif.	3/52	Western	Bonanza	4,177	5,876	1,699	40.68
El Dorado, Ark.	2/53	Delta-C&S	Trans-Texas	2,117	3,583	1,466	69.25
Erie, Pa.	2/53	American	Allegheny	4,221	9,512	5,291	125.35
Hickory, N. C.	3/52	Capital	Piedmont	1,134	2,196	1,062	93.65
LaCrosse, Wis.	3/52	Northwest	North Central	1,619	2,797	1,178	72.76
Longview, Texas	3/53	Braniff	Trans-Texas	1,724	4,005	2,281	132.31
Mansfield, Ohio	2/53	TWA	Lake Central	2,961	4,444	1,483	50.08
Marion, Ohio	2/53	TWA	Lake Central	1,291	1,878	587	45.47
Pine Bluff, Ark.	2/53	Delta-C&S	Trans-Texas	485	1,686	1,201	247.63
Prescott, Ariz.	4/49	TWA	Frontier	1,109	2,839	1,730	156.00
Richmond, Ind.	4/50	TWA	Lake Central	1,196	1,177	(19)	(1.59)
Texarkana, Texas	2/53	American	Trans-Texas	4,881	3,593	(1,298)	(26.59)
Wenatchee, Wash.	3/53	Northwest	West Coast	2,434	3,610	1,176	48.32
Worcester, Mass.	3/53	TWA	Mohawk	631	2,594	1,963	311.09
Yuma, Ariz.	3/52	Western	Bonanza	2,475	5,012	2,537	102.51
Zanesville, Ohio	2/53	TWA	Lake Central	1,426	1,437	11	0.77
Totals				33,881	56,229	22,348	
Averages				2,117	3,514	1,397	65.96

[1] All cities where substitution has occurred and local service provided for at least a year thereafter.

—(Ray & Ray Compilation)

More Traffic Where Feeders Replace Trunks

AN average traffic increase of 65.96 per cent has occurred at cities where local service has been substituted for trunk airline service. The increase is obtained by comparing the number of passengers carried by the local airlines during the first full year after substitution with the number carried by the trunk airline for the last year of its service. The effect of the change of carriers on traffic generation for the sixteen cities where a substitution has been made is shown in the table above.

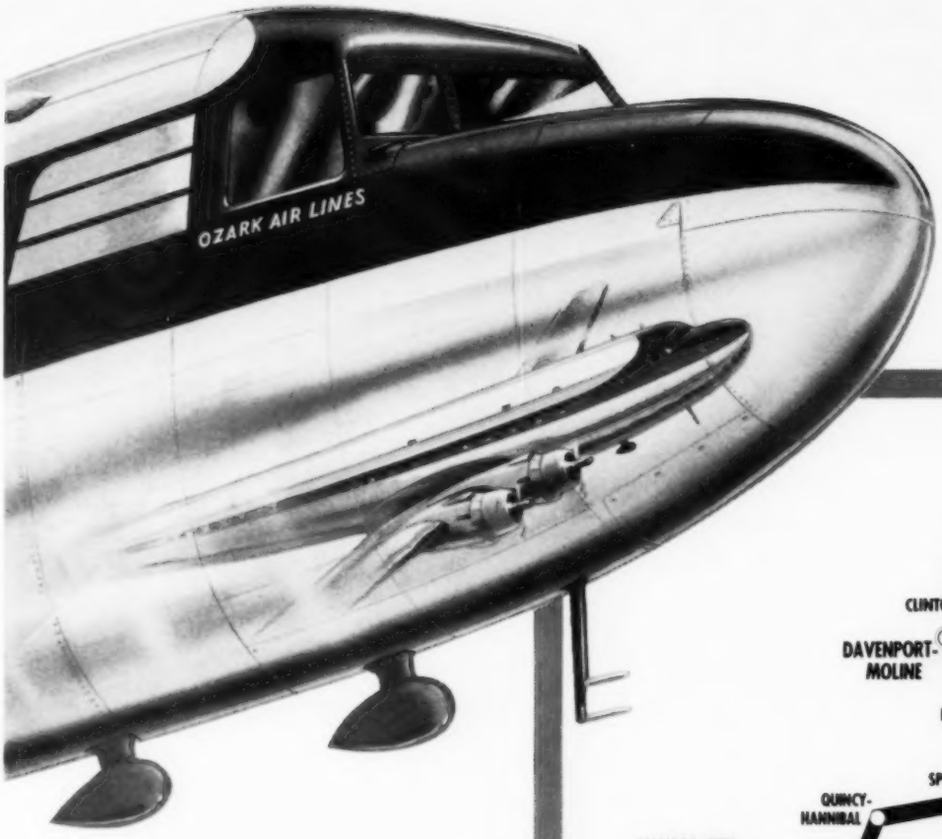
A trunk airline has been suspended at some eighteen other cities where service was being furnished by both trunk and local carriers. In general, such suspensions have resulted in increased traffic, 11.75 per cent being the average increase for the eighteen cities, as shown below.

The Effect on Passenger Generation of Suspending a Trunk at a Local Service Point

City [1]	Quarter and Year of Suspension	Trunk Carrier Suspended	Local Carrier Continued	Number of Enplaned Passengers: Last Year Both Services	First Year Local Only	Increase: Number	Increase: Per Cent
Abilene, Texas	4/50	American	Pioneer	10,626	11,081	455	4.28
Big Spring, Texas	4/50	American	Pioneer	3,180	2,746	(434)	(13.65)
Bristol, Tennessee	3/52	American	Piedmont	27,165	29,416	2,251	8.29
Duluth, Minnesota	1/51	Northwest	North Central	4,552	9,693	5,141	112.93
Eau Claire, Wis.	1/52	Northwest	North Central	1,489	1,504	15	1.01
Eureka, Calif.	3/52	United	Southwest	17,524	18,157	633	3.61
Kokomo, Ind.	4/50	Delta	Lake Central	835	1,596	761	91.14
Lancaster, Pa.	2/53	TWA	Allegheny	3,363	2,940	(423)	(12.58)
Lynchburg, Va.	3/52	American	Piedmont	6,246	5,907	(339)	(5.43)
McAlester, Okla.	2/53	Braniff	Central	1,139	1,292	153	13.43
Monterey, Calif.	3/52	United	Southwest	14,041	17,935	3,894	27.73
Paris, Texas	1/53	Braniff	Central	543	776	233	42.91
Pueblo, Colo.	1/52	Braniff	Frontier	3,035	2,944	(91)	(3.00)
Red Bluff, Calif.	3/52	United	Southwest	1,568	1,025	(543)	(34.63)
Rock Springs, Wyo.	3/52	United	Frontier	2,109	1,960	(149)	(7.06)
Santa Barbara, Calif.	3/52	United	Southwest	8,857	9,441	584	6.59
Tyler, Texas	3/53	Braniff	Trans-Texas	4,391	6,645	2,254	51.33
Winslow, Ariz.	2/53	TWA	Frontier	4,072	3,160	(912)	(22.40)
Averages				6,374	7,123	749	11.75
Totals				114,735	128,218	13,485	

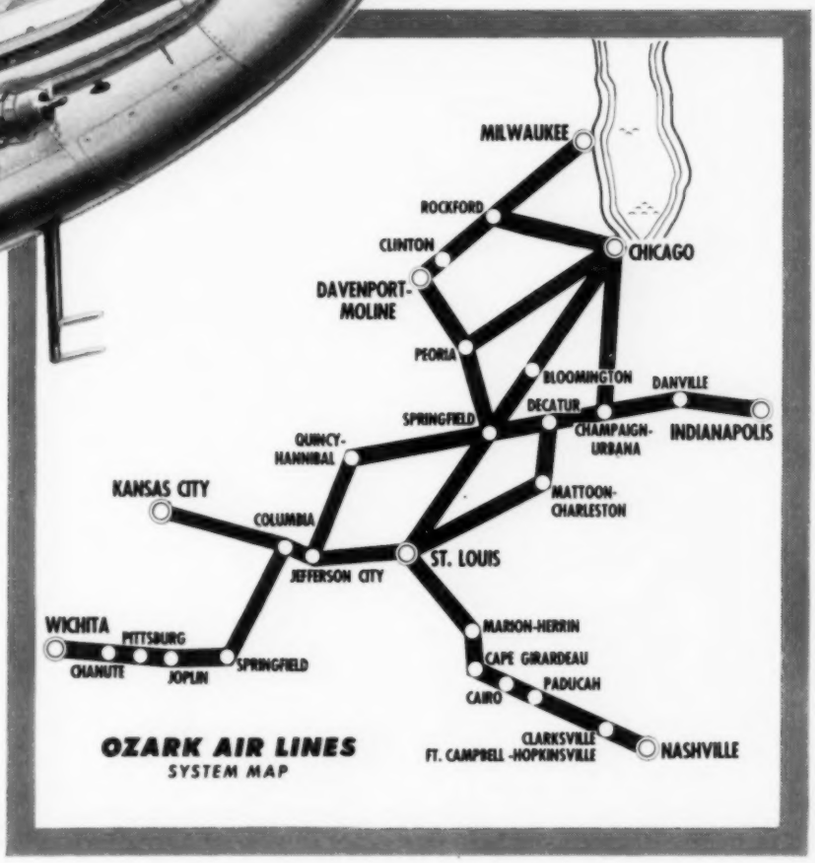
[1] All cities where suspension of a trunk has occurred followed by the continuing service of a local carrier for at least a year.

—(Ray & Ray Compilation)



OZARK

reflects the excellence of its Trunk Line Connections

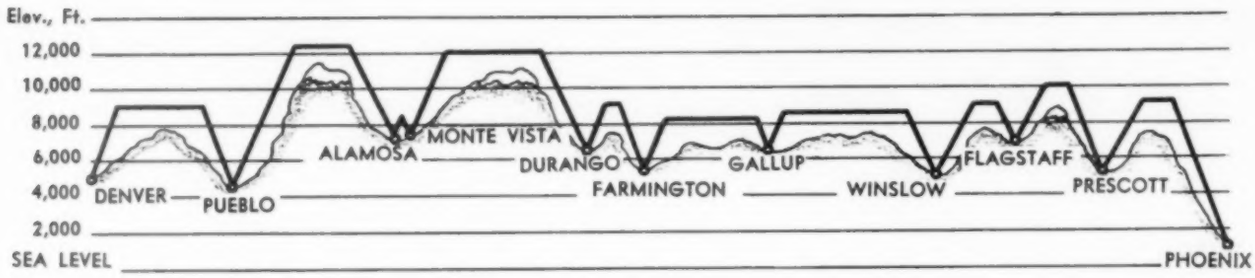


Ozark Air Lines make every effort to match the splendid performance and service of the trunk lines to which it supplies local connections.

Your passengers, scheduled from distant points through to the 36 midwest cities served by Ozark Air Lines, appreciate the convenient timing of Ozark's frequent daily flights. They like the courtesy and efficiency of Ozark personnel. It is only natural that they should, because Ozark patterns its operation to the high standards of the connecting lines in an effort to keep the passengers transferred to or from your line, comfortable and happy throughout their entire trip.

OZARK AIR LINES THE BUSINESS MAN'S AIRLINE

General Offices: Lambert Field, St. Louis, Mo.



PROBLEMS OF SHORT-HAUL LOCAL AIRLINE OPERATIONS are many but one of the most interesting is that faced by Frontier Airlines with its mountain-hopping DC-3's. Some of the Frontier system is shown by this profile sketch illustrating how its transports spend far more time climbing and descending between high-elevation cities than they do cruising. Direct routings over 13,000-15,000-ft. terrain are impractical, so circuitous hopping around most of the highest peaks is necessary. —(Sketch by Frontier Airlines.)

PASSENGER BOARDINGS

(Continued from page 40)

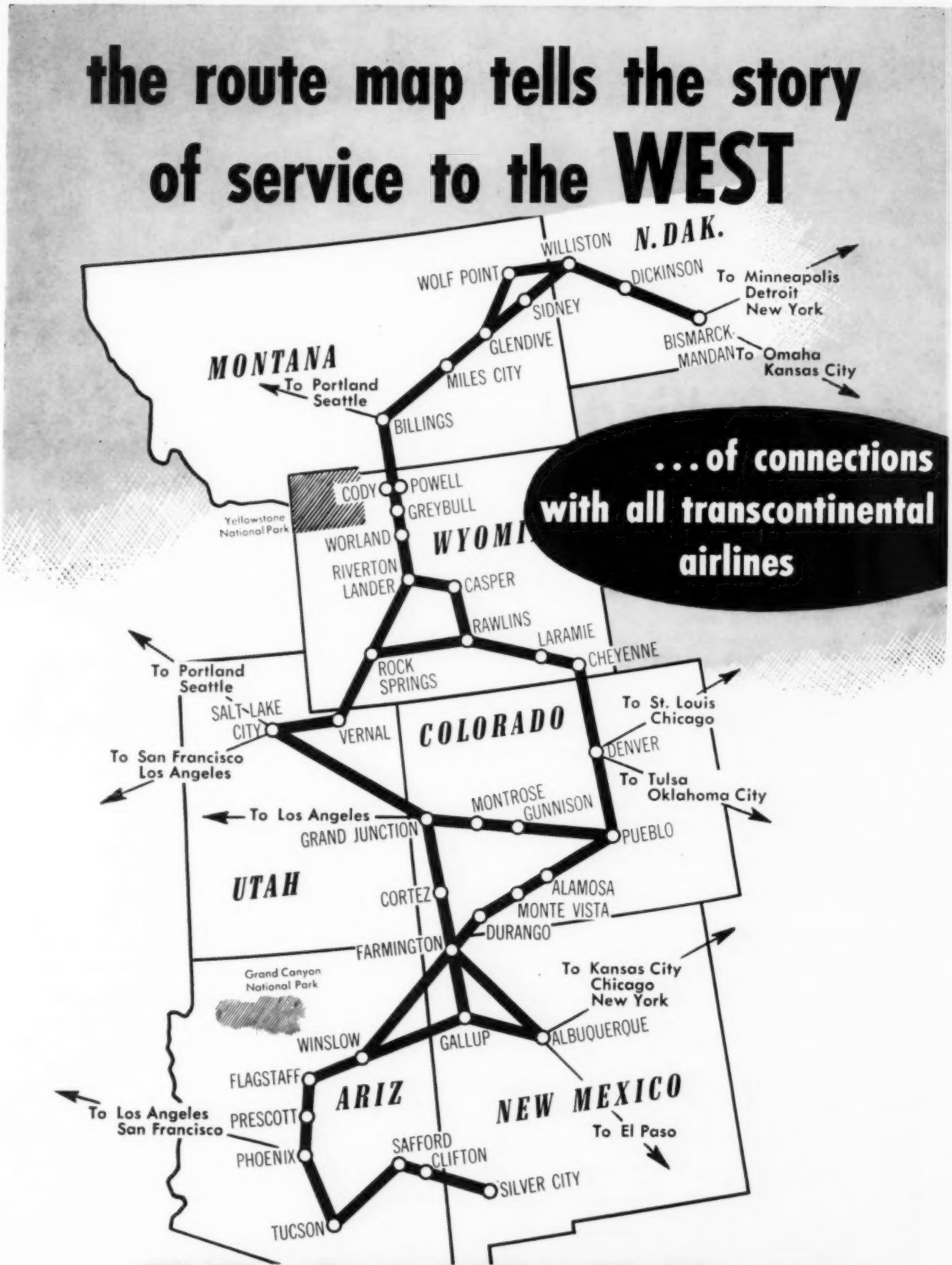
Rank	City	Aircraft Departures	Passengers Boarded
180.	Phillipsburg, Pa. (1, 7)	1,041	2,973
181.	Santa Maria, Calif. (1)	1,455	2,971
182.	Kokomo, Ind. (1)	2,855	2,965
183.	Baton Rouge, La.	1,336	2,956
184.	Hibbing, Minn. (1, 7)	1,153	2,955
185.	Youngstown, Ohio	655	2,936
186.	Lancaster, Pa.	1,323	2,917
187.	Stevens Point, Wisc. (1)	1,817	2,873
188.	Wheeling, W. Va.	1,632	2,853
189.	Alamosa, Colo. (1)	1,496	2,822
190.	Westfield, Mass. (1)	1,742	2,787
191.	Vernal, Utah (1)	1,390	2,786
192.	Pullman, Wash. (1, 7)	985	2,751
193.	Astoria, Wash. (1)	961	2,741
194.	Pocatello, Ida.	1,377	2,727
195.	Albany, Ga.	1,817	2,618
196.	Victoria, Texas (1)	2,137	2,603
197.	Hickory, N. C. (1)	2,005	2,523
198.	Paducah, Ky.	903	2,517
199.	Worland, Wyo. (1)	1,437	2,447
200.	Corvallis, Ore. (1, 7)	2,118	2,436
201.	Borger, Texas (1)	1,257	2,422
202.	Kinston, N. C. (1)	1,266	2,409
203.	Laramie, Wyo. (1)	2,005	2,375
204.	Temple, Miss. (1)	1,953	2,369
205.	Ponca City, Okla. (1)	2,635	2,362
206.	Lansing, Mich. (4)	1,909	2,351
207.	Escanaba, Mich. (1)	1,133	2,350
208.	Salisbury, Md. (1)	772	2,321
209.	Vicksburg, Miss. (1)	2,039	2,306
210.	Cody, Wyo. (1)	755	2,291
211.	Menominee, Mich. (1, 7)	1,385	2,251
212.	Rock Springs, Wyo. (1)	1,734	2,246
213.	El Paso, Texas (2, 8)	586	2,233
214.	Klamath Falls, Ore.	713	2,229
215.	Kalamazoo, Mich.	1,347	2,186
216.	Santa Fe, N. M.	1,484	2,181
217.	New Bern, N. C.	1,045	2,172
218.	El Dorado, Ark. (1)	1,384	2,068
219.	Moultrie, Ga. (1)	1,805	2,057
220.	Ephrata, Wash. (1, 7)	1,351	2,016
221.	Greenville, S. C.	1,164	1,986
222.	Myrtle Beach, S. C. (1, 3)	702	1,985
223.	Marion, Ind. (1)	2,390	1,978
224.	Twin Falls, Ida.	1,378	1,944
225.	Jefferson City, Mo. (1, 4)	899	1,924
226.	Clovis, N. M. (1)	1,459	1,918
227.	Houghton, Mich. (1, 7)	654	1,902
228.	Pine Bluff, Ark. (1)	2,807	1,902
229.	Muskogee, Okla. (1)	1,416	1,840
230.	Marquette, Mich. (1)	1,228	1,831
231.	Lufkin, Texas (1)	2,268	1,831
232.	Olympia, Wash. (1)	1,451	1,788
233.	International Falls, Minn. (1, 4)	411	1,762
234.	Lima, Ohio (4, 1)	759	1,685
235.	San Luis Obispo, Calif. (1)	673	1,680
236.	Athens, Ga. (1)	1,280	1,669
237.	Duncan, Okla. (4, 1)	1,179	1,663
238.	Dover, Del. (1)	621	1,653
239.	Iron Mountain, Mich. (1)	1,234	1,632
240.	Santa Ana, Calif. (1)	1,165	1,613
241.	Cape Girardeau, Mo. (1)	1,295	1,605
242.	Ironwood, Mich. (1)	1,190	1,574
243.	Richmond, Ind. (1)	2,010	1,557
244.	Manitowoc, Wisc. (1)	1,191	1,545
245	Montrose, Colo. (1)	717	1,537
246.	Kansas City, Mo. (2, 7, 8, 6)	399	1,518
247.	Quincy, Ill. (1)	644	1,487
248.	Brownwood, Texas (1)	1,128	1,417
249.	Kingman, Ariz. (1)	1,366	1,409
250.	Zanesville, Ohio (1)	1,805	1,331
251.	Dayton, Ohio	994	1,292
252.	Laurel, Miss. (1)	1,279	1,279
253.	Stillwater, Okla. (1)	753	1,235
254.	Wilmington, Del.	1,226	1,224
255.	Pinehurst, N. C. (1, 3, 7)	591	1,213
256.	Red Bluff, Calif. (1)	1,430	1,203
257.	Powell, Wyo. (1, 7)	706	1,190
258.	London, Ky. (1, 7)	908	1,180
259.	Plainview, Texas (1)	1,374	1,159
260.	New Philadelphia, Ohio (1)	1,691	1,158
261.	Yreka, Calif. (1)	661	1,072
262.	Easton, Md. (1)	685	1,060
263.	Lock Haven, Pa. (1)	846	1,039
264.	Rawlins, Wyo. (1)	1,166	1,031
265.	Sweetwater, Texas (1)	1,372	1,030
266.	Bemidji, Minn. (1)	691	1,025
267.	Cour D'Alene, Ida. (1)	1,327	1,024
268.	Danville, Ill. (1, 6, 8)	833	1,000
269.	Baltimore, Md.	571	997
270.	Cairo, Ill. (1)	1,250	975
271.	Williston, N. D. (4, 1)	425	972
272.	Magnolia, Ark. (1)	1,376	972
273.	McAlester, Okla. (1)	852	969
274.	Chehallis, Wash. (1, 7)	1,205	966
275.	Topeka, Kan. (5)	429	929
276.	Paris, Tex. (1)	1,079	922
277.	Camden, Ark. (1)	1,391	918
278.	Kerrville, Tex. (1)	1,278	916
279.	Asbury Park, N. J. (1)	930	914
280.	Cape May, N. J. (1, 3)	153	912
281.	Marshall, Tex. (1)	2,034	912
282.	Greenwood, S. C. (1)	1,279	898
283.	Ardmore, Okla. (1)	678	887
284.	Ada, Okla. (1)	686	882
285.	Pittsfield, Mass.	929	879
286.	Ukiah, Calif. (1)	546	863
287.	Brainerd, Minn. (1)	673	862
288.	Clintonville, Wisc. (1)	1,295	855
289.	Winona, Minn. (1)	1,277	842
290.	Glendive, Mont. (1, 4)	397	824
291.	Watsonville, Calif. (1)	684	795
292.	Shawnee, Okla. (1, 5)	562	793
293.	Safford, Ariz. (1)	705	792
294.	Danville, Va.	603	777
295.	Spartanburg, S. C.	1,123	776
296	Galveston, Tex. (1)	705	761
297.	Gunnison, Colo. (1)	692	743
298.	Snyder, Tex. (1)	1,236	741
299.	Ft. Stockton, Tex. (1)	791	722
300.	Burley, Ida. (1)	1,381	721
301.	Greybull, Wyo. (1)	960	717
302.	Baker, Ore. (1)	707	716
303.	Cumberland, Md. (1)	467	709
304.	Blythe, Calif. (1)	717	701
305.	Keene, N. H. (4)	482	700
306.	Pendleton, Wash.	705	689
307.	Pittsburg, Kan. (1)	713	653
308.	Pecos, Tex. (1)	710	647
309.	Marfa, Tex. (1, 7)	709	638
310.	Beeville, Tex. (1)	2,131	630
311.	Gary, Ind. (1)	1,066	622
312.	Hawthorne, Nev. (1)	594	612
313.	Fargo, N. D. (5)	262	594
314.	Monte Vista, Colo. (1)	603	582
315.	Ontario, Ore. (1, 7)	712	579
316.	Chanute, Kan. (1)	1,135	570
317.	Silver City, N. M. (1)	503	560
318.	Miles City, Mont. (1, 4)	387	559
319.	Ellensburg, Wash. (1)	1,010	524
320.	Clifton, Ariz. (1)	670	518
321.	Bismarck, N. D. (4, 7)	215	515
322.	Coleman, Tex. (1, 4)	1,298	508
323.	Morehead City, N. C. (1, 3)	108	503
324.	LaGrande, Ore. (1)	693	492
325.	Sidney, Mont. (1, 4)	250	474
326.	Keokuk, Iowa (1, 5)	476	465
327.	Chickasha, Okla. (1)	723	457
328.	Burlington, Iowa (5)	491	440
329.	Bloomington, Ind. (1, 6)	350	436
330.	Tonopah, Nev. (1)	664	435
331.	Helena, Ark. (1, 7)	850	431
332.	Dickinson, N. D. (1, 4)	381	422
333.	Grand Forks, N. D.	356	421
334.	Breckenridge, Tex. (1)	757	421
335.	Ft. Bragg, Calif. (1, 7)	409	411
336.	Mineral Wells, Tex. (1)	837	409
337.	Woodward, Okla. (1)	828	345
338.	Thief River Falls, Minn. (1)	600	344
339.	Stuttgart, Ark. (1)	865	338
340.	Terre Haute, Ind. (4)	112	317
341.	Springfield, Ohio (1)	1,062	314
342.	Alton, Ill. (1, 5)	907	310
343.	Brady, Tex. (1, 4)	548	300
345.	Alexandria, La. (1, 5)	501	236
346.	Coffeyville, Kan. (1, 5)	427	227
347.	LaGrange, Ga. (1, 5)	429	223
348.	Wolf Point, Mont. (1, 4)	158	197
349.	Fayetteville, Ark. (1, 4)	118	188
350.	St. Cloud, Minn. (1, 5)	480	188
351.	Butler, Pa. (1, 5)	479	172
352.	Ajo, Ariz., (1, 5)	620	160
353.	Fergus Falls, Minn. (1, 5)	420	148
354.	Liberty, N. Y. (1, 3, 9)	82	126
355.	Paso Robles, Calif. (1, 5)	122	112
356.	Furnace Creek, Nev. (1, 5)	41	67
357.	Del Rio, Tex. (1, 5)	113	52
358.	Eagle Pass, Tex. (1, 5)	111	49
359.	Uvalde, Tex. (1, 5)	116	21
360.	Death Valley, Calif. (1, 3, 5)	12	20
361.	Clarksdale, Miss. (1, 5)	52	8
362.	Carson City, Nev. (1, 5)	73	7

Local Service Certificate Authorizations

Before Permanent Certificates Issued

Carrier	Effective Date	Service Inauguration	Original Cert. Term (Yrs.)	Original Cert. Expiration Date	First Renewal Term (Yrs.)	First Renewal Expiration Date	Second Renewal Term (Yrs.)	Second Renewal Expiration Date	Certificate Life, as of June 1955 (Mos.)
Allegheny	1-49	3-49	3	1-52	5	12-56			18
Bonanza	11-49	12-49	3	12-52	3	12-57			30
Central	11-46	9-49	3	5-50	4	2-56			8
Frontier	3-46	11-46	3	3-49	6	3-55			3
Lake Central	2-48	11-49	3	2-51	4	12-54	1	12-55	6
Mohawk	6-48	9-48	3	6-51	7	6-58			36
North Central	10-47	2-48	3	10-50	5	9-55			3
Ozark	9-50	9-50	3	9-53	3.5	9-58			39
Piedmont	12-47	9-48	3	12-50	7	12-57			30
Pioneer	11-43	8-45	3	12-46	3	11-49	5	9-54	9
Southern	2-49	6-49	3	2-52	5	12-56			18
Southwest	5-46	12-46	3	11-49	5	9-54			9
Trans-Texas	11-46	10-47	3	5-50	4	3-54			15
West Coast	5-46	9-46	3	9-49	5	9-54			9
						Average			10.2

the route map tells the story of service to the WEST



fly FRONTIER AIRLINES

Cities along the Ozark Air Lines system provide billboards (above), full-page newspaper ads, radio programs and other aids to selling air transportation. These are civic promotions, at no cost to Ozark. Telephone technique converts inquiries into sales for Trans-Texas Airways, which uses tape recordings to train its personnel (right) by periodically checking their effectiveness.

Selling Local Service

THE phenomenal success of the local air service experiment, climaxed by Congressional amendment of the Civil Aeronautics Act to permanentize the feeders, reflects the greatest air-travel selling job in aviation history. In hundreds of smaller cities throughout the country, local airlines have conducted an unrelenting, intensive grassroots sales campaign keyed to an air service proposition of "use it or lose it."

The 14 local airliners had no formula to follow in the selling experiment, for small town scheduled service had never been intensively sold by the pioneering trunk airlines. The locals lacked adequate financial resources for spectacular advertising and promotional activities. But even local businesses, newspapers and townspeople joined in with feeder airline traffic managers, pilots, stewardesses and maintenance people to beat the drums and fill the airplanes — they had to make it successful or lose the only opportunity their cities ever had for a rightful place on the air map of the United States.

At any single point in the nationwide campaign, few if any local airlines could mark off a particular sales drive as being any more than momentarily productive, but alert feeders knew their sales effort was basically cumulative in its effects, that each succeeding drive would make for even more results in the long run. The payoff began in mid-1954, gathered momentum early in 1955 and traffic on the locals is now booming to new records for every month of the year so far.

Aviation is dramatized at every opportunity and the feeders make the most of any possibility of getting across their message.

An example is furnished by Frontier Airlines, which serves the Rocky Mountain area. Its seven district sales managers are dedicated to conducting intensive "air weeks" at as many intermediate cities as possible. An "air week" is a greatly amplified barnstorming promotion, wherein a town is literally saturated with promotion of air transportation in general and Frontier Airlines in particular for a busy 7 days. It all builds up a special Sunday program at the airport, where

(Continued on page 53)

Local Service Airlines Interline Traffic Exchanged with Trunk Airlines during 1954

LOCAL airlines in 1954 furnished $16,305,685 in passenger revenues to trunk carriers and received from the trunks about half as much, or $8,618,682 (long hauls on trunks and short hauls on locals). The two figures total about $25,000,000 and this represents the portion of passenger fares still to be used after interchanges were made. Logically, an equal amount must be assigned to that part of the journey made before the interchange and this brings to $50,000,000 the total value of interchange traffic to the locals and trunks for 1954.

The figures show more passengers were exchanged from the trunks to the locals than vice versa. But this is distorted by reporting practices. If a sale is made on a carrier's ticket stock, the passenger is credited to that carrier. Such stock is widely used by travel agents, even in local service cities. Also, many corporations use trunk airline ticket stock for their traffic departments. Thus many local passengers are erroneously credited to trunks in an interchange. However, money figures shown in the tabulation are not affected by these ticketing practices.

Traffic From Local to Trunk Airlines				Traffic From Trunk to Local Airlines		
Number of Passengers	Revenue	Revenue per Passenger	Local Airline	Number of Passengers	Revenue	Revenue per Passenger
50,709	$ 1,429,499	$28.19	Allegheny	87,051	$ 797,053	$ 9.16
14,840	486,602	32.79	Bonanza	25,697	344,825	13.42
13,636	504,103	36.97	Central	15,519	152,645	9.84
28,471	943,014	33.12	Frontier	43,655	623,317	14.28
26,157	546,022	20.87	Lake Central	31,593	279,431	8.84
19,740	809,685	41.02	Mohawk	60,424	704,545	11.66
71,573	2,052,896	28.68	North Central	148,097	1,519,947	10.21
33,576	913,794	27.22	Ozark	47,883	462,509	9.66
86,367	1,822,656	21.10	Piedmont	97,617	1,270,444	13.01
40,516	1,356,439	33.48	Pioneer	44,823	721,057	16.09
34,605	908,373	26.25	Southern	48,785	484,439	9.93
47,443	2,260,372	47.64	Southwest	46,210	441,265	9.55
39,915	1,281,817	32.11	Trans-Texas	36,942	460,663	12.47
21,919	990,413	45.18	West Coast	30,207	356,542	11.80
529,467	$16,305,685	$30.80	Totals	765,313	$8,618,682	$11.26

—(Ray & Ray Compilation)

Alaska Coastal AIRLINES
SOUTHWEST SWA AIRWAYS
BONANZA AIR LINES
CORDOVA AIRLINES
Air Lines OZARK
TRANS-TEXAS Airways
WCA WEST COAST AIRLINES
NORTH CENTRAL AIRLINES
PIEDMONT Airlines
ALLEGHENY AIRLINES
Wien Alaska Airlines
FRONTIER AIRLINES
Reeve Aleutian Airways
CENTRAL AIRLINES Inc.
HAWAIIAN AIRLINES
Southern AIRWAYS
NORTHERN Consolidated AIRLINES INC.
Lake Central AIRLINES
MOHAWK Airlines
THE ROUTE OF THE AIR CHIEFS
TPA Aloha AIRLINE
A Pioneer in ALASKA Flying
ELLIS AIR LINES
Since 1930

To our good friends – the local service airlines

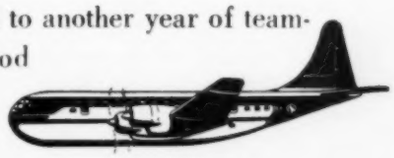
"THANKS"

We deeply appreciate your expression of confidence, as shown by the important volume of business you have routed to us in 1954.

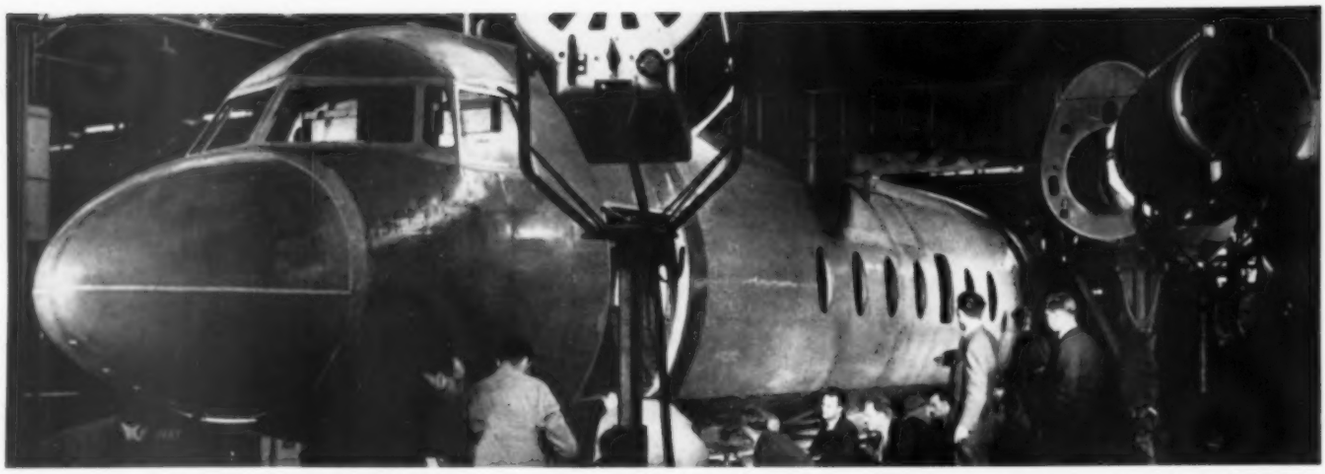
We have found that it's mighty good business to do business with the local service airlines. It has helped us build our interline sales to the highest point in our history.

We also recognize the heavy responsibility it places on us. We pledge ourselves to provide the quality of service that will continue to merit your cooperation. The passengers you send us will enjoy even better service in 1955. We will be operating our Turbo Constellations to Alaska, the Orient and Hawaii. We are scheduling more of our ever-popular Stratocruisers on domestic routes. And we are increasing our low-cost Air Coach service coast to coast.

We look forward to another year of teamwork with our good friends—the local service airlines.



NORTHWEST Orient AIRLINES



Not a "dream" plane, the F.27 Friendship feederliner prototype is far advanced in construction as this recent photo from the Fokker factory shows. Wing and pressurized cabin have been mated. Fight tests begin this summer, with CAA certification simultaneously. It will be manufactured by Fairchild under license. Designed for short-haul economies, the F.27 is powered by two Rolls-Royce Dart turboprops, has a 270-mph. cruising speed at 10,000 ft., and its seat-mile and ton-mile costs are said to be lower than those of DC-3.

Fairchild's Answer to DC-3 Problems

Flight tests near for most likely DC-3 replacement in local air service

By R. JAMES PFEIFFER
Fairchild Engine & Airplane Corp.

THE biggest obstacle to smooth and profitable local service operation — temporary certification — has now been eliminated. Permanent certification has become a reality, at the mandate of Congress. The local airlines for the first time are now able to stimulate the investment capital required to re-equip.

The first concern of the local service operators will be to minimize subsidies, and this in turn means that re-equipping will proceed with a good degree of fiscal caution, as well it should. But the replacement problem is an urgent one, and one that is with us right now. Even the DC-3 can't last forever — at least the operators are hoping it won't, what with rising operating costs and parts replacement difficulties.

Obviously, replacement will have to start with a few new planes on good routes where the service, speed and comfort demand is 15 years ahead of what the DC-3 can deliver. The question then is: what can replace the DC-3? And will the lower operating costs and better all-round service offset in a minimum of time the initial outlay?

Fairchild's answer to these questions — the F.27 Friendship — will fly this summer in Holland, the home of its designer, Royal Netherlands Aircraft Factories Fokker. Then Fairchild anticipates going into production on the F.27 for the locals, the corporation fleets — for any job now being done by the DC-3.

A most complete series of wind tunnel tests, stress analyses, and engine tests conducted over the past months indicate the F.27 is the ideal answer. Preliminary studies show seat-mile and ton-mile costs definitely lower than those of the DC-3.

The F.27 has a big jump on other possible contenders in that it was designed from scratch as a DC-3 replacement. The thinking behind it was to improve on the strong points of the DC-3 (and there are certainly plenty), to eliminate or change the features that the medium and short haul operators have been griping about, and, finally, to add the important new features — like turboprop power — that have come along since the DC-3 began logging time. The logical outcome of this line of thought was a high-wing, tricycle-gear, pressurized, turboprop transport — the F.27.

Performance, for example, on the F.27 runs about like this: Top cruising speed at 20,000 feet is 285 mph. Range is somewhere around 2,000 miles (830 for airline use) — and the Friendship can get to 20,000 ft. with a take-off weight of 34,000 lbs. in less than 19 minutes.

Local operators will like the Friendship's operating speed of 270 mph. at 10,000 ft., an altitude the F.27 climbs to in about 7 minutes. Take-off distance with normal payload at sea level is under 4,000 ft., permitting the use of medium and smaller fields. And at 15,000 ft., cruising at 275, the Friendship will cover a mile for every five pounds of fuel — and that's inexpensive kerosene, not high octane aviation gasoline.

The F.27 cabin will seat 28 to 36 passengers. The cabin is pressurized at 4.16 psi., providing a cabin altitude of 8,000 ft. at an airplane altitude of 20,000. This is similar to standard airline pressurization requirements and identical to current airline practice. The Friendship's pressurization tests,

(Continued on page 58)

The Fairchild F.27 Friendship
Factory Data

Power plants: Two Rolls-Royce Dart (RDa 6 rating) turboprops.	
Static take-off at sea level: 1,600 eshp plus 365 lb. thrust at 14,500 rpm.	
Static max. continuous power, sea level: 1,230 eshp plus 295 lb. thrust at 13,800 rpm.	
Span, ft.	**95**
Length, ft.	**73**
Height, ft.-ins.	**26-6**
Wing Area, sq. ft.	**754**
Cabin Height, ft.-ins.	**6-8**
Landing Gear Track, ft.-ins.	**23-7.5**
Max. Cruising Speed (20,000 ft.), mph.	**285**
Rate of Climb (Sea Level, I. S. A.), fpm.	**1,500**
Service Ceiling, ft.	**35,000**
SE Operating Altitude, ft.	**12,500**
Max. Range (airline use), miles	**830**
Standard Gross Wt., lbs.	**34,200**
Wing Loading, lbs./sq. ft.	**43.3**
Power Loading, lbs./hp.	**9.7**
Disposable Load, 28 seats, lbs.	**11,305**
Disposable Load, 36 seats, lbs.	**10,945**
Max. Payload, 28 seats, lbs.	**9,535**
Max. Payload, 36 seats, lbs.	**9,175**

155 FLIGHTS DAILY

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EXCELLENT CONNECTIONS WITH ALL AIRLINES

at Los Angeles, San Francisco and Medford, Oregon

Above all • fly

SOUTHWEST AIRWAYS

GENERAL OFFICES
SAN FRANCISCO INTERNATIONAL AIRPORT, SAN FRANCISCO

SELECTED REVENUE AND EXPENSE (Dollars)	Allegheny	Bonanza	Central	Frontier	Lake Central	Mohawk
Passenger Revenue	2,762,383	1,026,589	482,102	2,084,138	679,762	2,664,091
Total Non-Mail Revenue	2,924,660	1,075,160	530,708	2,357,934	755,022	2,825,656
Mail Pay	1,873,194	881,153	1,797,085	2,821,733	1,546,469	859,031
Total Revenue	4,797,854	1,956,313	2,327,793	5,179,667	2,301,491	3,684,687
Direct Expense	2,156,045	813,698	970,753	2,103,162	1,002,701	1,687,545
Ground and Indirect Expense	2,607,175	1,072,474	1,313,400	2,922,765	1,242,153	1,799,141
Total Expense	4,763,220	1,886,172	2,284,153	5,025,927	2,244,854	3,486,686
Profit (or Loss)	34,634	70,141	43,640	153,740	56,637	198,001
SELECTED OPERATING STATISTICS						
Revenue Miles	4,047,450	1,705,808	1,851,439	4,463,859	1,827,613	3,077,716
Revenue Passengers	276,833	76,150	59,209	153,257	79,597	222,564
Revenue Passenger Miles (000)	42,865	17,561	8,711	38,443	11,453	40,006
Passenger Load Factor (%)	50.43	49.02	22.40	41.01	29.84	62.10
Revenue Ton-Miles	4,267,069	1,757,610	951,511	4,385,700	1,174,111	3,981,627
Ton-Mile Utilization Factor (%)	43.93	42.93	21.41	40.94	26.77	54.10
REVENUES AND EXPENSES—Cents Per Revenue Mile						
Revenues:						
Passenger	68.25	60.18	26.04	46.69	37.19	86.56
Total Non-Mail	72 26	63.03	28.67	52.82	41.31	91.81
Mail Pay	46.28	51.66	97.06	63.21	84.62	27.91
Total Revenue	118.54	114.69	125.73	116.03	125.93	119.72
Expenses:						
Flying Operations	37.05	32.22	36.37	36.21	35.92	35.90
Maintenance Flight Equipment	12 57	12.32	13.65	9.98	15.81	13.82
Depreciation Flight Equipment	3.65	3.16	2.41	0.92	3.14	5.11
Total Direct Expense	53.27	47.70	52.43	47.11	54.87	54.83
Ground Operations	19.07	17.25	22.80	22.70	23.03	16.75
Maintenance—Ground and Indirect	8.33	10.05	10.34	9.32	7.63	8.03
Passenger Service	5.15	4.60	4.59	5.84	4.86	4.63
Traffic and Sales	18 30	13.06	17.64	13.01	19 29	13.10
Advertising and Publicity	3.82	2.73	2.42	3.88	1.10	3.32
General and Administrative	8.83	12.82	11.93	9.71	11.43	10.95
Depreciation Ground Equipment	0.91	2 36	1.22	1.02	0.62	1.68
Total Ground and Indirect Expense	64.41	62 87	70.94	65.48	67.96	58.46
Total Expense	117.68	110 57	123.37	112.59	122.83	113.29
Profit (or Loss)	0.86	4.12	2.36	3.44	3.10	6.43
Break-Even Need	45.42	47.54	94.70	59.77	81.52	21.48
SELECTED REVENUES AND EXPENSES—Cents Per Ton-Mile						
Total Non-Mail Revenue	68.54	61.17	55.78	53.76	64.30	70.97
Total Revenue	112.44	111.30	244.64	118.10	196.01	92.54
Total Expense	111 63	107.31	240.05	114.60	191.20	87.57
Break-Even Need	43.09	46.14	184.27	60.84	126.90	16.60
ADDITIONAL OPERATING STATISTICS						
Scheduled Miles	4,104,442	1,736,807	1,919,606	4,435,663	1,870,897	2,997,444
Completion Factor (%)	96.40	97.63	96.15	97.00	96.55	95.63
Average Passenger Load	10.59	10.29	4.70	8.61	6.27	13.00
Average Length of Journey	155	231	147	251	144	180
Revenue Ton-Miles:						
Passenger	4,043,658	1,666,748	833,855	3,651,864	1,040,554	3,787,188
U. S. Mail	72.996	26,794	55,516	195,078	31,843	43,888
Express and Freight	132,621	53,408	56,811	517,353	95,960	138,752
Excess Baggage	17,794	10,460	5,329	21,405	5,754	11,799
Average Ton Load	1.05	1.03	0.51	0.98	0.64	1.29
Ton-Miles of Surface Mail	6,527	2,993	12.663	92.920	644	2,750
Total Revenue Hours	29.350	11,482	12,879	29,779	13,133	22,840
Average Flying Speed (MPH)	137.9	148.6	143.8	149.9	139.2	134.8
Type(s) of Aircraft Operated	DC-3	DC-3	DC-3	DC-3	DC-3	S-55/DC-3
Number of Aircraft Operated	15	5	7	12	7	10
Daily Aircraft Utilization	5:33	6:18	6:22	6:47	5:11	6:07
Daily Route Mile Turnover	7.3	4.0	4.3	4.6	4.6	9.8
Landings Per Day	162	44	79	134	85	110
Tons of U. S. Mail Carried	520	129	319	618	283	280
Tons of Express and Freight Carried	973	274	340	1,672	851	905
Gallons of Fuel Consumed	3,081,795	1,210,325	1,358,476	3,243,122	1,433,905	2,397,350
Number of Employes	542	217	337	593	262	354
Number of Actual Departures	59,075	16,121	28,728	49,056	31,125	40,095
Number of Months in Operation	69	60	63	97	62	75
Per Actual Departure:						
Revenue Miles	68.5	105.8	64.4	91.0	58.7	76.8
Revenue Passengers	4.7	4.7	2.1	3.1	2.6	5.6
Revenue Passenger Miles	726	1,089	303	784	368	998
Per Employe:						
Revenue Miles	7,468	7,861	5,494	7,528	6,976	8,694
Revenue Passengers	511	351	176	258	304	629
Revenue Passenger Miles	63,900	80,926	25,849	64,828	43,713	113,011
ADDITIONAL FINANCIAL DATA						
Ratio-Total Expense to Non-Mail Revenue	0.61	0.57	0.23	0.47	0.34	0.81
Non-Mail Revenue Per:						
Revenue Passenger (Dollars)	10.13	13.57	8.17	14.32	8.66	12.20
Revenue Passenger Mile (Cents)	6.56	5.89	5 58	5.56	6.11	6.80
Actual Departure (Dollars)	49.51	66 69	18.47	48.07	24.26	70.47
Employe (Dollars)	5,396	4,955	2,446	3,976	2,882	7,982

Service Airline Operations for 1954

North Central	Ozark	Piedmont	Pioneer	Southern	Southwest	Trans-Texas	West Coast	Total or Average
3,346,663	1,466,747	3,870,215	2,561,660	1,319,842	2,006,971	1,761,828	1,640,204	27,673,195
3,499,884	1,582,745	4,098,868	2,822,147	1,427,105	2,325,567	1,891,388	1,704,619	29,821,463
2,328,920	1,772,026	2,209,544	1,478,251	1,935,733	1,129,952	2,737,067	1,523,595	24,893,753
5,828,804	3,354,771	6,308,412	4,300,398	3,362,838	3,455,519	4,628,455	3,228,214	54,715,216
2,850,945	1,599,329	3,189,116	2,084,679	1,454,861	1,545,240	2,059,656	1,571,647	25,089,377
2,806,315	1,712,610	2,920,504	1,965,326	1,771,186	1,640,451	2,470,814	1,771,849	28,016,163
5,657,260	3,311,939	6,109,620	4,050,005	3,226,047	3,185,691	4,530,470	3,343,496	53,105,540
171,544	42,832	198,792	250,393	136,791	269,828	97,985	(115,282)	1,609,676
5,244,830	2,964,951	6,248,067	3,693,355	3,098,694	2,563,039	4,530,309	3,130,821	48,447,951
285,284	156,391	308,893	163,408	135,413	203,814	135,398	167,221	2,423,432
48,314	25,675	62,339	44,528	22,919	38,259	30,897	29,766	461,736
43.87	41.24	47.51	51.78	35.22	60.01	32.48	45.27	44.59
4,870,173	2,536,218	6,339,040	4,611,686	2,369,389	3,842,551	3,264,324	2,811,479	47,162,488
38.69	35.64	42.27	47.92	31.86	54.55	30.02	37.42	40.00
63.81	49.47	61.94	69.36	42.59	78.31	38.89	52.39	57.12
66.73	53.38	65.60	76.41	46.06	90.73	41.75	54.45	61.56
44.40	59.77	35.36	40.03	62.47	44.09	60.42	48.66	51.38
111.13	113.15	100.96	116.44	108.53	134.82	102.17	103.11	112.94
31.54	34.22	34.81	44.38	33.15	39.60	32.57	36.56	35.60
13.81	13.72	12.65	11.30	12.38	13.30	9.65	10.18	12.28
9.01	6.00	3.58	0.77	1.42	7.39	3.24	3.46	3.91
54.36	53.94	51.04	56.45	46.95	60.29	45.46	50.20	51.79
17.95	16.50	11.44	17.80	16.75	20.60	18.56	19.96	18.07
6.97	6.14	5.42	5.13	8.07	9.09	9.00	6.27	7.57
4.81	4.84	4.76	5.93	4.64	5.34	4.20	4.54	4.93
12.42	14.82	15.02	12.90	15.90	13.77	12.15	11.67	14.23
2.66	2.61	3.21	2.93	2.27	3.31	2.84	3.14	2.99
7.49	11.72	6.41	7.60	8.41	9.84	6.91	9.75	8.93
1.20	1.13	0.48	0.92	1.12	2.05	0.88	1.26	1.10
53.50	57.76	46.74	53.21	57.16	64.00	54.54	56.59	57.82
107.86	111.70	97.78	109.66	104.11	124.29	100.00	106.79	109.61
3.27	1.45	3.18	6.78	4.42	10.53	2.17	(3.68)	3.33
41.13	58.32	32.18	33.25	58.05	33.56	58.25	52.34	48.05
71.86	62.41	64.66	61.20	60.23	60.52	57.94	60.63	63.23
119.68	132 28	99.52	93.25	141.93	89.93	141.79	114.82	116.01
116.16	130.59	96.38	87.82	136.15	82.90	138.78	118.92	112.60
44.30	68.18	31.72	26.62	75.92	22.38	80.84	58.29	49.37
5,342,561	2,945,279	6,320,178	3,608,384	3,080,378	2,285,518	4,596,856	3,133,310	48,377,323
96.85	97.12	98.15	99.07	98.98	98.65	97.50	98.33	97.65
9.21	8.66	9.98	12.06	7.40	14.93	6.82	9.51	9.53
169	164	202	272	169	188	228	178	191
4,474,909	2,387,698	5,922,219	4,240,398	2,187,224	3,634,733	2,943,436	2,693,158	43,507,842
175,149	52,918	109,868	142,495	83,690	73,210	126,202	38,091	1,227,738
194,722	82,890	260,737	207,109	83,001	122,806	185,016	70,871	2,202,057
25,393	12,712	46,216	21,684	15,474	11,802	9,670	9,359	224,851
0.93	0.86	1.01	1.25	0.76	1.50	0.72	0.90	0.97
54,081	2,555	11,562	29,528	4,357	7,742	19,748	2,870	250,940
35,947	21,121	42,148	23,114	20,223	17,590	30,206	23,347	333,159
145.9	140.4	148.2	159.8	153.2	145.7	150.0	134.1	145.4
DC-3	DC-3	DC-3	202/DC-3	DC-3	202/DC-3	DC-3	DC-3	——
18	11	15	13	10	10	16	12	161
5:29	5:17	7:43	5:34	5:29	4:48	5:18	5:20	5:49
6.9	4.4	10.8	7.0	4.8	6.2	5.3	4.9	5.6
183	114	197	107	120	103	171	133	1,742
723	342	583	606	466	550	602	264	6,285
1,291	548	1,199	682	443	766	893	413	11,250
3,746,101	2,379,264	4,648,244	2,641,863	2,184,874	2,274,477	3,543,109	2,347,037	36,492,442
639	378	653	404	404	290	525	370	5,968
66,774	41,550	72,068	39,120	43,707	37,661	62,423	48,498	636,001
82	51	82	113	67	96	87	96	79
78.5	72.1	86.7	94.4	71.1	68.1	72.6	64.6	76.2
4.3	3.8	4.3	4.2	3.1	5.4	2.2	3.5	3.8
724	625	865	1,138	526	1,016	495	615	726
8,208	7,844	9,568	9,142	7,670	8,838	8,629	8,462	8,118
446	414	473	404	335	703	258	452	406
75,608	67,923	95,466	110,217	56,731	131,928	58,851	80,449	77,369
0.62	0.48	0.67	0.70	0.44	0.73	0.42	0.51	0.56
11.80	9.54	12.56	15.95	9.88	11.11	13.05	9.95	11.68
7.05	5.94	6 25	6.08	5.89	5.76	5.75	5.56	6.16
52 41	38 50	56.88	72.14	32.73	61.75	30.30	35.15	46.89
5,477	4,187	6,277	6,986	3,532	8,019	3,603	4,607	4,997

—(FLIGHT MAGAZINE Compilation by Ray & Ray, Consultants)

For the Air Force

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Transportation that's

Immediate transportation that takes you where you want to go, returns you straight home. You set your own schedules. Gives flexibility to your business. Your best men can be more places "in person."

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Cessna 180

Cessna 170

All-Metal Cessna 170

Built like the airliners. Has riveted-seam all-metal fuselage. Only all-metal airplane in the low-priced field. Has 100 "plus" features not found on other low-priced planes. $8,295 f.o.b. Wichita.

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To meet demands of the jet age, the Air Force awarded Cessna the responsibility of developing a jet trainer which will make the move into turbojet-powered airplanes easier.

The Cessna-developed T-37 is designed for this specific job. It will fly at both high and low speeds, has outstanding altitude performance, permits smoother, safer transition to jet flying at an earlier phase in a cadet-pilot's training program. This, in turn, means substantial savings in time and training costs for the Air Force.

Given the responsibility of developing this new trainer, Cessna is proud and privileged to join with the Air Force in planning for the jet age.

s ready when you are!

For more information about the 1955 Cessnas, see your nearest Cessna dealer (listed in yellow pages of phone book) or write CESSNA AIRCRAFT CO., DEPT. FM-6, Wichita, Kansas.

A Cessna for every size and type of business

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All-New Cessna 310

Fastest of the new twins. Wing-tip tanks hold gas load. Retractable landing gear. Can climb—fully loaded—380 ft. a minute on one engine, travel 1,640 miles in a day.* Priced surprisingly low—$49,950 f.o.b. Wichita.

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Cessna

Indianapolis Model for Community Air Planning

FEW cities have shown the foresight and faith in the growth of local air service demonstrated by the city of Indianapolis, Indiana. In its expansion of Weir Cook Airport, the city constructed a new home for Lake Central Airlines costing $600,000, which was raised through general obligation bonds.

Thus Lake Central can boast of the newest headquarters plant (shown above and at left) operated by any of the 14 local carriers. Its municipal facilities include 24,816 sq. ft. of hangar and shop space and 9,266 sq. ft. of office space, for which the annual rental paid by Lake Central is $53,842 including heat, lighting, janitor service and insurance.

Planned since the end of World War II, the Weir Cook expansion and improvement includes a new terminal building of advanced design. These new facilities are the kind of monument to air progress the aviation industry understands and serve as a model for municipal planning everywhere. ★ ★ ★

When Employes Take Over

EMPLOYE determination and sacrifice have been a major factor in the success of America's pioneering 14 local airlines, each of which has had more than the normal share of hard knocks and difficult times in surviving the experimental development of short-haul feeder service. An outstanding example of employe contribution to success is Lake Central Airlines of Indianapolis, which serves 26 cities in the five states of Indiana, Ohio, Michigan, Illinois and Pennsylvania. When the going was toughest, this airline's workers bought control and took over the operation to save it.

The story behind the employe-purchase of Lake Central had its beginning early in 1954 when the former owners of the airline, whose stock was held in trust, decided to dispose of their holdings. The plan was to sell their stock to another local service carrier. But Lloyd W. Hartman, executive vice president, and Robert W. Clifford, vice president of operations, conceived the idea of employe control as the best solution to the problems of developing the airline. They obtained an option and in January, 1955, the contract was fulfilled when 162 employes, representing 65 per cent of the personnel, acquired 97.5% of the airline's outstanding common stock.

Hartman and Clifford arranged the financing of the 80,954 shares and offered it to employes at $1 per share through a 2-year payroll deduction plan. Twenty-five per cent of the stock was bought outright and the remainder is being paid in installments.

Of the stock, station personnel acquired 18.6%, flight personnel 27.9%, maintenance personnel 11.7%, general office personnel 10% and supervisory personnel 31.8%. The average number of shares owned by each stockholding employe is 500. No single worker subscribed to more than 3,900 shares.

Because the Civil Aeronautics Board expressed its desire to see Lake Central continue under a management program set forth by the company officers under the direction of Dr. R. B. Stewart, president of the airline and vice president-treasurer of Purdue University, it was decided that all employe-held stock would be placed in a voting trust for a period of 5 years. This trust was also needed to facilitate the additional financing which Lake Central must undertake.

J. J. O'Connell, Washington attorney and former CAB chairman, was sought as company trustee and his appointment awaits CAB approval.

Employe ownership has breathed new life into Lake Central. At the time negotiations for control began a year ago, the airline was losing heavily. But after the purchase option was obtained in May, 1954, better earnings developed and in June, 1954, the airline realized its first profit. Continued improvement has been recorded and now Lake Central is breaking all of its past records for passenger growth.

★ ★ ★

SELLING LOCAL SERVICE

(Continued from page 44)

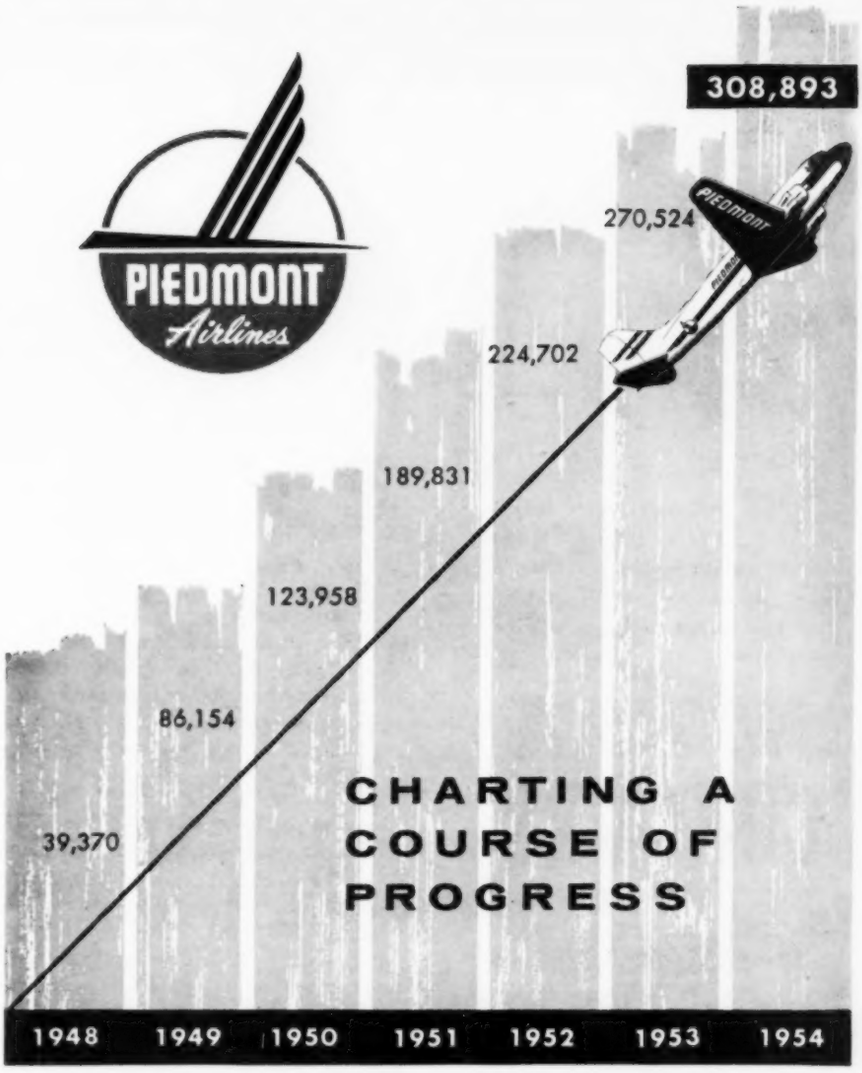
Frontier takes over — up to this point only three or four Frontier salesmen have kept the ball rolling but on Sunday two plane loads of Frontier officials, radio, newspaper and TV people arrive from Denver ready to make the most of the red-hot promotion. Thousands take in aircraft and equipment displays by the Air National Guard and the Air Force — and Frontier operates its two special DC-3's on 20-min. sightseeing hops. Usually, 600 to 700 local people thus obtain their first ride in an airplane and become potential airliner customers for future sales calls.

Ozark Air Lines, operating out of St. Louis, has successfully stretched its sales and advertising efforts with a "partners in air service" promotion in which intermediate cities provide, at no cost to Ozark but as a community undertaking, lighted highway billboards, full-page newspaper ads, use of Ozark insignia in regular merchant ads, regular mailings of timetables by chambers of commerce, window displays, increased publicity and news stories. This not only does a sales job Ozark cannot afford but sparks a personal interest among local townspeople in Ozark's growth and success as a local carrier.

Local carriers have made fullest use of time-proved "sales blitz" campaigns, in which teams of airline salesmen invade a city in an all-out canvass. But Ozark has added a novel twist — the local chamber of commerce matches the airline team man for man with local businessmen teaming up for the canvass. A master list of potential airline users is first prepared, then divided into groups of 7 prospects each. A local man and an Ozark man are assigned to each group. Advance publicity announces the canvass and before launching the drive on the appointed day at a chamber of commerce breakfast, telephone calls make sure the prospects will expect the sales teams. As many as 140 calls have been made in half a day by 20 teams. Connecting trunk airlines supply salesmen to help Ozark.

Another good example of expert sales blitz use is furnished by Southwest Airways of San Francisco. Like all feeders, Southwest does not have a large sales staff. But for its "flying wedge" campaigns, its pilots volunteered to help. At one intermediate city, a team of 10 made 200 business contacts in only 2 days last March. The impact was startling. Whereas this city had boarded only 275 passengers

(Continued on page 90)

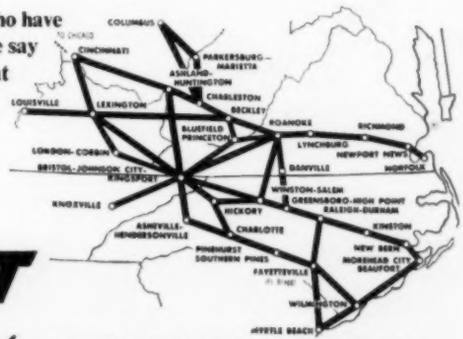


Two industry records highlighted the steady growth and progress made by Piedmont Airlines during 1954. The 308,893 passengers who flew Piedmont during 1954 established the airline as the first local service carrier to fly over 300,000 passengers in a single year. Earlier in 1954, Piedmont had set a record by becoming the first of the local service airlines to fly 1,000,000 passengers. In addition, Piedmont in one month — August — broke another local service record by flying 31,893 passengers.

Piedmont added only one new station to its system in 1954—Princeton-Bluefield, W. Va., but in March of this year inaugurated new service to three other important cities—Columbus, Ohio, Parkersburg, W. Va., and Marietta, Ohio. Today Piedmont operates over 3,087 route miles, serving 45 cities in seven states.

Throughout seven years of continuous progress, the proportion of Piedmont passengers flying "interline" has been large. And 1954 was no exception!

To our friends in the business who have contributed so much to our growth, we say "thank you." We can assure you that Piedmont Airlines will continue to stimulate and develop interline business to the fullest possible extent.



PIEDMONT Airlines ROUTE OF THE PACEMAKERS

Home Office and Operations Base—Smith Reynolds Airport

WINSTON-SALEM, NORTH CAROLINA

First

On or about July 1, 1955, MOHAWK becomes the first Local Service Airline to operate post-war equipment with pressurized cabins!

MOHAWK CONVAIRS

are coming!

MOHAWK is proud to begin its eleventh year serving the great Northeast with this modern post-war equipment!

The Route of the Air Chiefs

MOHAWK AIRLINES

Mohawk Airlines Break-Even Mail Pay Need

	DC-3 Fleet		Fleet Mixed	
	Total Dollars	Dollars Per Passenger	Total Dollars	Dollars Per Passenger
1953	$900,000	$5.50		
1954	621,000	2.80		
1955	605,000	2.40	$655,000	$2.35
1956	600,000	2.07	590,000	1.78
1957	600,000	1.86	440,000	1.10

NOTE: Actual figures for 1953-54 are shown, with those for 1955-57 being forecast for operations. Convair depreciation is on 7-year basis. Mixed fleet contains 3 Convair 240's and 10 DC-3's.

CONVAIRS FOR MOHAWK

(Continued from page 34)

weight limit is only 38,600 lbs. and a burn-off rate of 200 gals. hourly means a Convair at full gross must fly an hour and 30 mins. before it can land). This problem cannot be solved until aircraft engineers are convinced of the economic requirement of and market for a short-haul transport designed to carry more passengers economically over a shorter distance, rather than designed for expansion to carry the same number of people a greater distance.

Convair Vs. DC-3

Primarily, our decision to mix the Convair 240 into our fleet was based on Mohawk's realization that the saturation point for traffic development had been reached on its system with DC-3 equipment — it is apparent to everybody that DC-3 cost levels will continue to rise.

The economics of the Convair made sense to our management. For example, a DC-3 cruising at 160 mph. can produce 4,160 seat miles per hour, assuming 26-passenger capacity. But a 40-passenger Convair will cruise at 240 mph. and can produce 9,600 seat miles per hour.

The direct cost of an hour's flight in a DC-3 is $80. In a Convair this is $240. But the Convair with a 40-passenger load will produce passenger revenues of $672 on a 7-cent-per-mile average fare, while the DC-3 with a 26-passenger load will produce only $291 per hour on the same basis. The simple result is this: The Convair, fully loaded, will earn a net profit of $432 hourly beyond direct flight costs while the DC-3 earns $211 hourly. Hence it appears that the economic advantage of the Convair makes available an additional net earning potential of about $200 per hour or a 2-to-1 ratio in its favor over the DC-3 (additional indirect cost of Convair operation is relatively negligible compared to the DC-3 local service operation).

However, this greater earning potential must be tempered by the carrier's ability to fill the Convair or at least exceed the DC-3's full load capacity on a substantial portion of its flights. Mohawk has pegged the traffic development necessary for Convair introduction into service without increase in subsidy requirement.

Under our mixed fleet operation commencing July 1, some 1,300,000 additional seat miles per month will be operated at peak travel times in spite of an increase of over-all aircraft mileage of only 10,000 miles per month (due to yearly growth). Translated into peak load passenger capacity, this means that in an average summer month, 7,200 additional passengers will have Mohawk seats available to them at the time they wish to travel. To achieve this same peak load capacity in an all DC-3 operation would require three additional DC-3's plus the two DC-3's which Mohawk would have purchased for scheduled service this spring haad it not bought the Convairs.

Planned Utilization of Convair

We will use Convairs initially on our two heaviest route segments from Buffalo to New York via alternate routings of (1) Buffalo-Rochester-Syracuse-Utica-Rome and (2) Buffalo-Rochester-Ithaca-Binghamton-New York.

In addition, one daily round trip will be scheduled between Watertown, Utica and New York to furnish RON hangar and maintenance facilities for the aircraft.

Initially, two Convairs will be scheduled for an average daily utilization of 9 hours each. The third Convair will be used as a maintenance spare and operational back-up. Mohawk plans to retain all its fleet of 10 28-passenger DC-3's at the outset, although it plans to operate only 8 in daily scheduled operation. The 9th DC-3 will be a maintenance spare with the 10th an operational back-up for the Convairs. Later, this one will be used for charter. We have an 11th DC-3 which is experimentally licensed under contract to General Electric for flight testing new devices.

With operational experience, we will schedule our third Convair 5.5 days weekly, using DC-3's for maintenance back-up purposes. Because of our phase overhaul system, we operated all 10 DC-3's in scheduled service 151 days

last year. We consider daily availability of the greatest number of aircraft a more important factor in attaining our high load factor than the number of hours a given aircraft is operated daily. This philosophy will be extended to Convair operation to insure optimum scheduling.

Anticipated Convair Results

Revised management forecasts indicate a reduction in break-even subsidy need the first year of Convair operation from $570,000, if an all DC-3 fleet were employed, to $526,000 through the use of a mixed Convair-DC-3 fleet. This is a net saving to the government of $44,000 per year in break-even need. However, return and tax liability on the additional capital invested in Convair equipment may raise the over-all subsidy requirements during our first year of Convair operation. But Mohawk feels that the Board will not limit its judgment of managerial prudence in undertaking a gradual equipment replacement program to study of a single year's operating results. If the CAB were to do so, better local airline service would be stymied by inability to meet depreciation charges alone. No local carrier could ever hope to eliminate subsidy because of inevitable obsolescence of its flight equipment, and hence disappearance of the element of return on investment through allowed earnings.

Our forecasts indicate the Convair will produce about 26,000 more passengers in the first year than would an all DC-3 fleet. This can be accomplished while flying 200,000 fewer aircraft miles.

Additional passengers are forecast from three sources:

1. The availability of 12 to 14 extra seats on our best flights.

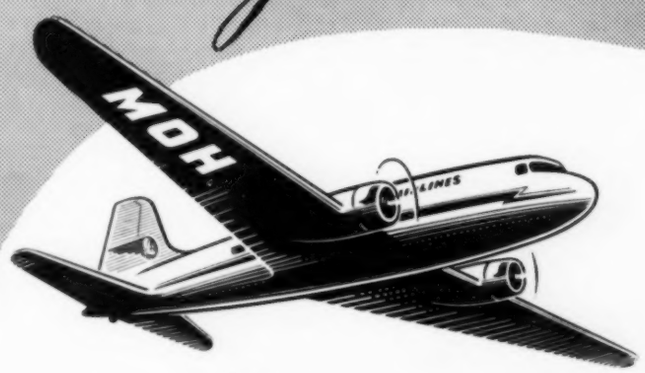
2. Our ability to participate more effectively in large city markets where passenger resistance to the DC-3 is substantial.

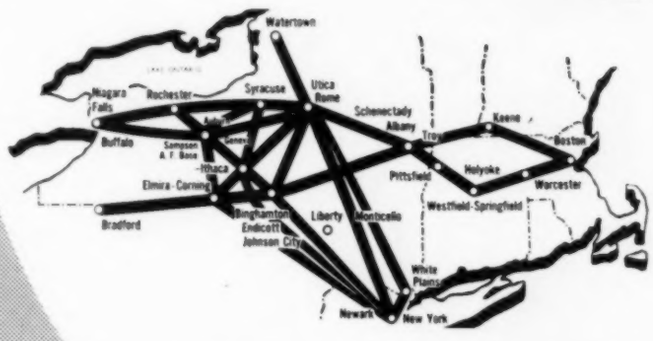
3. A limited number of new passengers (only about 3,000 per year) who will be attracted by the new Convair equipment.

Direct flight costs have been forecast to reflect a conservative average of other Convair operators, properly weighted to maintain Mohawk's relative cost levels to those of other carriers. In other words, there has been no assumption that we will become a relatively more efficient operator compared to other carriers — this is a factor we believe may have been overlooked in previous equipment transition planning of other carriers.

Mohawk is confident that within the next few years, subsidy-free operation will be a year-round fact for Mohawk (in the summer of 1954, we

10 YEARS OF *Progress*





On April 6, 1945, MOHAWK's first passenger flight left Ithaca for Flushing, Long Island — a single-engine, 3-passenger plane. Today MOHAWK serves 30 communities through 17 airports... connects at major terminals with transcontinental and international planes... carries more than a quarter of a million passengers annually in a modern fleet of DC-3's, soon to be joined by MOHAWK Convairs! On our tenth birthday we wish to thank all — customers, employees, and friends— who have made it possible.

The Route of *the Air Chiefs*

MOHAWK AIRLINES

GENERAL OFFICES: CORNELL UNIVERSITY AIRPORT, ITHACA, NEW YORK

became the first local carrier to operate for a 3-month period on a profitable basis absolutely without subsidy). When this year-round fact is achieved depends primarily on the manufacturer's ability to modify the Convair 240 or 340 to carry more people shorter distances, or upon the ability of Fairchild or some other domestic U. S. manufacturer to produce a new transport meeting the Convair problems. This should permit subsidy-free operation by Mohawk and some of the other local airlines by 1960 and may be the ultimate answer to the equipment problem of some of them.

Mohawk feels that its immediate future demands subsidy-free operation and that its ultimate future lies in the large-scale and profitable (but subsidy-free) operation of twin-engine transport helicopters. ★ ★ ★

CHALLENGE FOR PROGRESS

(Continued from page 31)

few years will be the over-all rehabilitation and improvement of their route structures. Significant examples could be pointed to in the last year or two where overhaul of a route structure, or the addition of a segment here and the deletion of a town or two there, have meant vastly increased loads and consequently significant economic improvement. This industry is still a young one, however, and it is a conservative prediction to say that in several geographical areas the route structures a dozen years from today will bear little resemblance to those we currently know.

One of the important contributory factors to this route development, and a major problem in itself, will undoubtedly be new equipment with which to do the local airline job. Within another decade, possibly in considerably less time, there should be available in operational numbers an economical and thoroughly acceptable helicopter or convertiplane so that stops may be made more frequently than they now are and with little economic or operational penalty attached to frequency. Before this day arrives, however, there will undoubtedly be another generation of fixed wing aircraft to answer the description of what has come to be popularly known as the "DC-3 replacement."

Actually no "replacement," if that word signifies a modern version of substantially the same thing, of the DC-3 would be a solution to the equipment problem of the local airlines. Rather a new aircraft with a passenger load approaching twice the original seating of the DC-3 and with a speed at least one-half again as great will be required. Not only must its seat mile cost be substantially less than that of the DC-3, but also its plane mile cost of operation must be little, if any, greater. This aircraft must be tailored to the short flights of the local carriers. Its plane mile operating cost must make allowance for the high peak loads characteristic of the local carriers so that they may put an end to the present necessity of turning down lucrative weekend traffic for lack of capacity while flying relatively lightly loaded on certain other days of the week.

In some respects the local air carriers have an opportunity to render considerably greater relative public service than their larger brother airlines. The relative significance of scheduled air service to a small town's prosperity, growth, and communication with the rest of the world is even greater than that of a large city. In the case of a large city, substitutes, or improvisations, however unsatisfactory, may furnish a reasonable facsimile of the service rendered by a scheduled airline, or even that airline's competitors might fill the breach caused by its temporary suspension of service, but by its very nature a local airline means so much to the life of a small

RECOGNITION BY OUR *Big Brothers*

NATIONAL · TWA · Continental · Capital · Delta · NORTHWEST · AMERICAN · BRANIFF · EASTERN · UNITED

. . . of the important part we play in commercial aviation brings out our family pride!

The results of this ideal relationship pleases not only our big brothers by having provided $2,500,000 in connecting business last year, but also **thousands** of people throughout the Southwest to whom **all-the-way** air service is important . . . both of which are helping TTA to achieve leadership in the Local Service industry.

TRANS-TEXAS AIRWAYS

city that no substitute for it can approach rendering the public service furnished by the local service airline. The relative importance of the first class mail by air experiment, for example, to the communities served by several of the local airlines is all out of proportion to the volume of the first class mail they have carried and possibly will prove the experiment even more successful, in spite of relative bulks, in the case of the local carriers than in the case of the trunks.

The recent widely publicized emphasis on dispersal of defense plants is another good example of the genesis of a mission which the local airlines can eagerly undertake to fulfill. During the course of this year's hearings on permanent certification legislation, several examples were cited by witnesses of the relocation of manufacturing facilities in small towns served by local airlines and the abandonment of former facilities in large metropolitan centers. This tendency may be expected to accelerate over the course of the next few years as defense industries come to realize more and more that local airlines have ended the isolation that once seemed to be both characteristic of and inevitable in smaller cities.

The communities which are served by local service airlines have been relieved of the burden of constantly supporting petitions for re-certification of the local airlines that served them. The creation of this benefit has generated an increased responsibility on those communities, however, to provide both an increased volume of traffic and constantly to improve aeronautical facilities for the local airlines that serve them. The permanence of the local airlines has removed the provision of aviation facilities from the category of a municipal speculation and has placed such an investment in the category of a confident financial deposit on the community's future. There will be many cases where better facilities will generate better service, which will generate increased traffic, which will generate better facilities, which will generate better service, etc.

The goal of the local airlines, as they face the future, is the furnishing of greatly improved service and constant progress toward self-sufficiency. Subsidy is never a welcome word, but it must be viewed as the price tag which the lawfully designated body with jurisdiction over the subject has placed on the public convenience and necessity which is served by the airline in question. In this sense, it may well be that in some geographical areas the necessary frequency of service and the necessary contribution to national commerce and unity, which nothing

Local Service Airlines Selected Route Pattern Data As of December 1954

Carrier	Population Served (1950)	Number of Cities Served			Route Miles	Average Segment Length
		Total	Exclusive Local Ser.	% of Total Exclusive		
Allegheny	15,831,031	45	22	48.9	1,953	57.4
Bonanza	2,573,086	18	12	66.7	1,315	87.7
Central	2,499,684	26	13	50.0	2,206	73.5
Frontier	1,212,509	43	31	72.1	3,550	82.6
Lake Central	7,963,702	27	16	59.3	1,447	55.7
Mohawk	11,472,740	26	6	23.1	1,152	64.0
North Central	7,977,664	38	29	76.3	2,456	70.2
Ozark	7,161,608	26	10	38.5	1,769	73.7
Piedmont	2,809,921	44	14	31.8	2,265	70.8
Pioneer	2,086,427	23	11	47.8	1,850	80.4
Southern	2,929,795	28	11	39.3	1,958	69.9
Southwest	3,657,383	29	24	82.8	1,128	51.3
Trans-Texas	3,464,951	47	27	57.4	2,742	70.3
West Coast	1,535,142	43	30	69.8	2,022	59.5
Total (unduplicated)	47,456,949	426	251	58.9	27,651	69.3

A Flying Start . . . On Our Second Million Passengers

Paul Bunyan – patron symbol of West Coast Airlines has reason to be proud. The Airline he sponsored less than a decade ago, in April flew its millionth revenue passenger.

In 1947 – the first full year of operation – WCA flew 53,130 revenue passengers. Rapid gains were made each year, and in 1954 a record of 167,221 flew the airline. A whopping 35% increase in the first quarter of 1955 indicates a revenue passenger load of 200,000 this year.

Increasing numbers of air-minded people are discovering that West Coast Airlines is the quick, convenient way to travel the great Evergreen and Inland Empires of Washington, Oregon, and Idaho. In addition to local travel, WCA turned over $1,200,000 in interline revenue to eight connecting airlines during 1954.

West Coast Airlines is the only government certificated, scheduled Local Service airline serving the Pacific Northwest.

WEST COAST AIRLINES

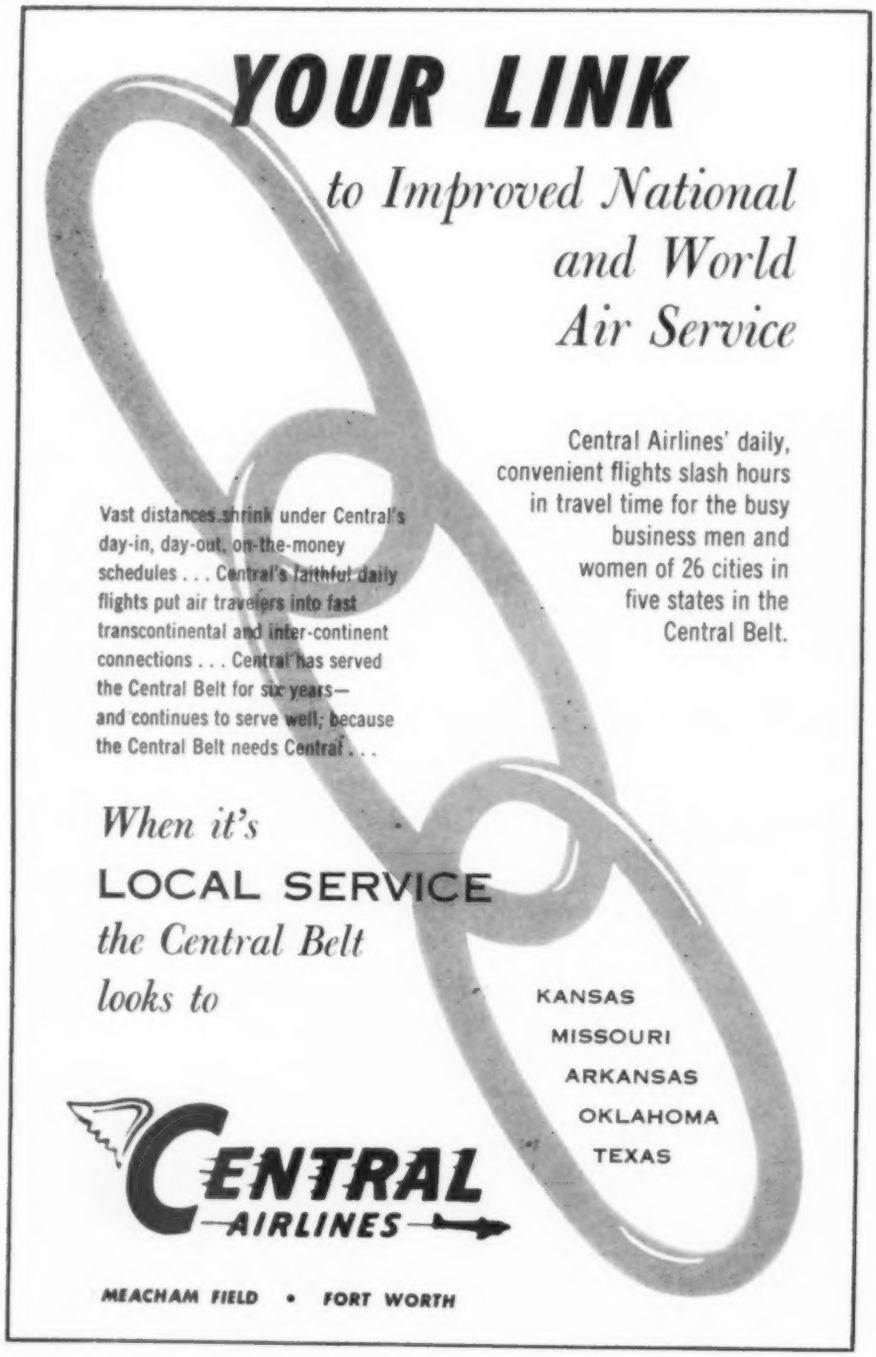
"Serving Paul Bunyan's Empire"

but a scheduled local air carrier can ever furnish, will make impossible the load factors, equipment utilizations and commercial revenues necessary to make the carrier completely self-sufficient. In other geographical areas it may be assumed that proper equipment, favorable route structures, good management and skillful regulation by the proper authorities will combine to make the carrier in question completely self-sufficient.

The important thought to keep in mind, however, is that the price tag still hangs from the public convenience and necessity to be served, and the question of who pays that price may depend on factors beyond the control of any local carrier; the public welfare will, however, be the barometer of reasonableness of that price tag and therefore of the financial value of the convenience and necessity to be appraised.

Although the local airline industry is a vigorous infant, it is still in its infancy. Today it is estimated that less than two per cent of the common carrier passengers who make trips under 250 miles do so by air, and the common carrier passengers on such trips are a small fraction of those who drive their own automobiles. Within a decade, with highway travel predicted to grow more crowded, more inconvenient, and more lethal, we may expect both of those proportions to rise radically. There is as yet no sign of a leveling off in the traffic growth curves of the local airlines and it would be surprising if, short of a major economic reversal or world cataclysm, those curves should begin leveling off for several more years. The local airlines have just scratched the surface of their potential traffic market and their vigor, enthusiasm, and preoccupation with rendering good local service to the traveling public guarantees that they will grow spectacularly in the next few years.

The brightness of the future for the local airlines is not shining on them alone, for their promising future is inevitably blended with the brighter future of the small and intermediate sized communities which collectively constitute a major, if not the major, element of America's over-all strength, and, therefore, with the future of our country as a whole. ★ ★ ★


YOUR LINK
to Improved National and World Air Service
Central Airlines' daily, convenient flights slash hours in travel time for the busy business men and women of 26 cities in five states in the Central Belt.
Vast distances shrink under Central's day-in, day-out, on-the-money schedules . . . Central's faithful daily flights put air travelers into fast transcontinental and inter-continent connections . . . Central has served the Central Belt for six years— and continues to serve well; because the Central Belt needs Central . . .
When it's
LOCAL SERVICE
the Central Belt looks to
KANSAS
MISSOURI
ARKANSAS
OKLAHOMA
TEXAS
CENTRAL AIRLINES
MEACHAM FIELD • FORT WORTH

FAIRCHILD'S F.47

(Continued from page 46)

incidentally, are being conducted underwater for maximum effectiveness.

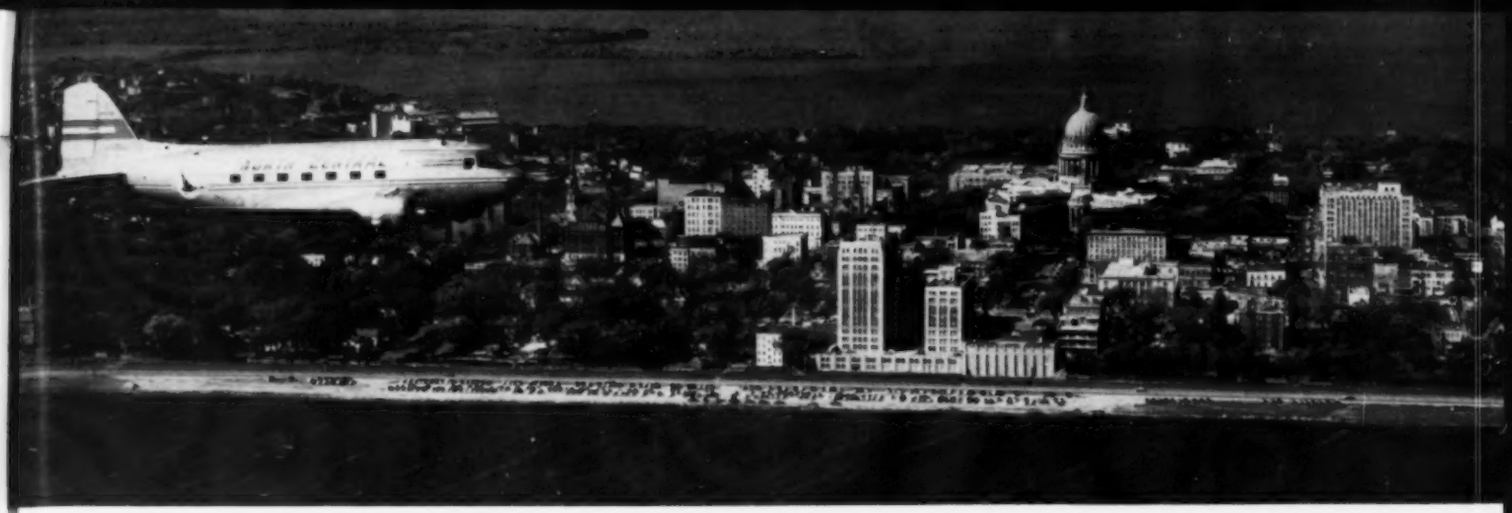
Probably the most important feature of the F.27 is the use of turbo-props instead of piston engines. The Rolls-Royce Dart used in the F.27, virtually the same engine used in the Viscount and proven in that aircraft, brings to local service passengers a new kind of service in smoother, quieter flight, and to the operators, negligible daily servicing, fuel savings, and an important publicity factor. The greatly reduced maintenance costs of the Dart turboprop engine represent an important economy in fleet operations.

Second only to the turboprops as a new and welcome feature is the high wing configuration. To the passenger, it means a clear view of the ground and no more sitting over the wing. To the operator, the high wing means a low floor and ease of entry and cargo handling, larger propellers for high take-off thrust, and greater lift. As an added safety feature, all the fuel is carried in the outer wing.

The flight deck of the Friendship was designed to reduce flight fatigue, a crucial factor when frequent landings and take-offs are required. The cockpit is roomy with plenty of headroom. Seats are fully adjustable, and visibility and soundproofing are excellent. Complete airline instrumentation is provided and all basic instruments are duplicated.

A pneumatic rather than a hydraulic system, with its advantages of safety, minimum weight, cleanliness and ease of maintenance, is featured in the F.27.

Servicing and maintenance of the F.27 are facilitated by the large num-



Local air service to America's smaller cities and towns is symbolized by this excellent photograph showing a North Central Airlines DC-3 letting down over Madison, Wisconsin, on its approach to Truax Field. North Central and 13 other short-haul local carriers last year carried 2,423,000 passengers as compared to only 983,000 carried in 1950.
—(North Central Airlines Photo.)

ber of interchangeable parts, including wing and tips, complete control units, landing gear, engines, windows, instrument and control panels, and pilot seats. All parts that need regular maintenance are easily accessible through large inspection doors and panels. Basic ground equipment — jacks, toolkit, slings, towing bar, intake and pitot head covers, cabin steps and undercarriage groundlocks are provided with the F.27.

All these features, plus fuel savings, bring the total hourly operating costs of the F.27 well below those of any pressurized transport. Exact costs and savings are being worked out at Fairchild now.

The F.27 Friendship will probably sell at around the half-million dollar figure. CAA certification tests start late this summer and will be handled by the CAA regional office in Paris. A good DC-3 replacement couldn't come at a better time. ★ ★ ★

AA Extends Credit Plan to All Feeders

LOCAL airlines now offer to smaller cities the same go-now-pay-later installment air travel credit plan used by American Airlines. The big trunk has extended the plan to the locals and even assumes financial risks involved.

PERMANENCE FOR LOCALS

(Continued from page 29)

lationships with the Board have pinched the most is in the mail rate section where mail rates have been held down to the point that the over-all subsidy bill has increased and the service has been poorer. Service has been cut on many routes to only one round trip a day, which isn't much service to a lot of communities. Then some towns are taken off the route because their traffic drops, too lof!

The rate section has insisted, with the support of the Board members, that all added schedules above the two basic trips per day must not only pay their way from the beginning but actually reduce the total dollars of subsidy required. This is tremendously difficult, especially with the DC-3 airplane, and it has served to hold back the development of full traffic potentials of the better routes.

Somewhere down the line, and we hope it comes soon, the Board must change its philosophy to permit the locals to make a little money, not so much from the standpoint of paying dividends, but rather to put a little fat on so they can start getting better equipment and move on into the next logical phase of their maturity — that of young adulthood — and do the kind of job they are now committed to do for the communities they serve just as the trunklines are doing for the major cities. One suggestion with merit is a proposal that two types of rates could be established for local air service instead of the present single formula. First, a service rate of mail/subsidy pay which would permit a profitable operation over certain strong route segments where traffic substantially guarantees permanent service. Second, the establishment of an incentive rate over leaner route segments which obviously need a prolonged development period. The end result would be a reasonable profit assurance for the carrier while still undergoing the burden of developing new routes or expanding into new towns that may or may not justify permanent service.

But the one big problem, the one seemingly insoluble situation, is the fact that local carriers are virtually bound to the long obsolete DC-3 air-

LOCAL SERVICE AIRLINES
Comparison of Revenue Miles Flown
1953-1954

Carrier	1953	1954	% Increase
Allegheny	3,398,826	4,047,450	19.1
Bonanza	1,660,977	1,705,808	2.7
Central	1,851,565	1,851,439	(0.1)
Frontier	4,401,723	4,463,859	1.4
Lake Cent.	1,639,279	1,827,613	11.5
Mohawk	2,565,999	3,077,716	19.9
North Cent.	4,290,409	5,244,830	22.3
Ozark	3,003,772	2,964,951	(1.3)
Piedmont	5,927,180	6,248,067	5.4
Pioneer	3,167,678	3,693,355	16.6
Southern	3,022,365	3,098,694	2.5
Southwest	2,845,172	2,563,039	(9.9)
Trans-Texas	3,541,292	4,530,309	27.9
West Coast	3,525,397	3,130,821	(11.2)
Totals	44,841,634	48,447,951	8.0

LOCAL SERVICE AIRLINES
Comparison of Revenue Passengers Carried
1953-1954

Carrier	1953	1954	% Increase
Allegheny	213,666	276,833	30.0
Bonanza	67,560	76,150	12.7
Central	42,496	59,209	39.3
Frontier	130,004	153,257	17.9
Lake Central	57,093	74,597	39.4
Mohawk	163,270	222,564	36.3
North Central	219,596	285,234	29.9
Ozark	125,220	156,391	24.9
Piedmont	270,524	308,893	14.2
Pioneer	147,584	163,408	10.7
Southern	112,469	135,413	20.4
Southwest	188,366	203,814	8.2
Trans-Texas	97,434	135,398	39.0
West Coast	162,846	167,221	2.7
Totals	1,998,128	2,423,432	21.3

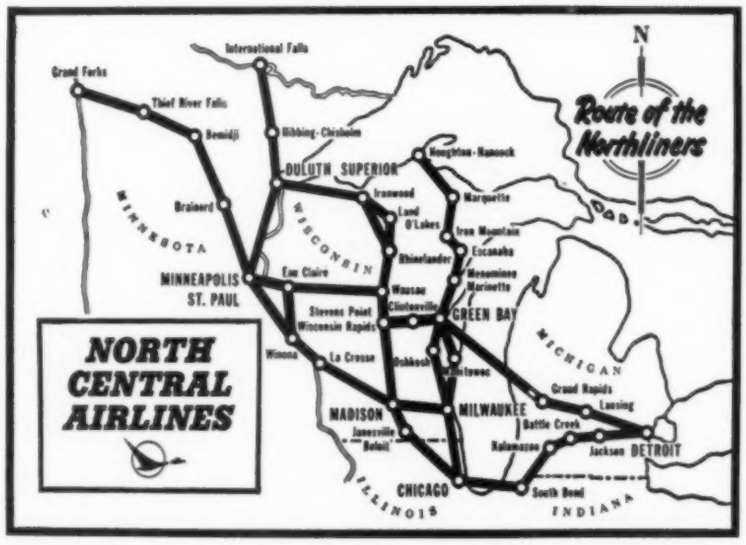
LOCAL SERVICE AIRLINES
Comparison of Revenue Passenger Miles Flown
1953-1954

Carrier	(000) 1953	(000) 1954	% Increase
Allegheny	31,611	42,865	35.6
Bonanza	15,572	17,561	12.8
Central	6,397	8,711	36.2
Frontier	33,058	38,443	16.3
Lake Central	8,528	11,453	34.3
Mohawk	27,366	40,006	46.2
North Central	38,034	48,314	27.0
Ozark	20,867	25,675	23.0
Piedmont	57,218	62,339	9.0
Pioneer	41,181	44,528	8.1
Southern	19,435	22,919	17.9
Southwest	37,541	38,259	1.9
Trans-Texas	20,991	30,897	47.2
West Coast	29,082	29,766	2.4
Totals	386,881	461,736	19.4

Now Serving 307 communities...

with scheduled local airline service in this important 6-state area

• At least 307 towns and cities, by actual count, are within easy driving distance to North Central service. We are the community airline of the North Central region — serving more than 45 key cities and their hundreds of adjacent communities in a six-state region. You can travel by air — correspond by air — ship by air — every day between the remote areas of the Northland and the populous "down-state" cities.



NORTH CENTRAL AIRLINES

Route of the Northliners

— serving more than 45 key cities in the Upper Midwest

ILLINOIS — INDIANA — WISCONSIN
MICHIGAN — MINNESOTA — NORTH DAKOTA

plane. Here again, however, the major road block has been removed. Permanent certification will go at least a small part of the way in opening the door to modern airplane designs suitable for the peculiarities of local service routes, which even in themselves offer so many, many-hued variations. They have gone as far as they can go with the DC-3. Bigger engines and some more streamlining aren't going to get the job done. It is now completely clear that operating improvement is at a standstill until the carriers can get new airplanes. This is everybody's problem, including the CAB and postal service and the Congress.

Though three carriers will be using mixed fleets this summer, with Martin and Convair aircraft added to their DC-3's, no one will admit this is the final answer because the Convairs and Martins get awfully expensive on extremely short hauls. These larger craft can, of course, be used on route segments with trunkline characteristics where load factors are high. But neither Convair nor Martin is a DC-3 replacement. A smaller, more versatile aircraft is required, one that will give more capacity, more speed and more comfort. Until such an airplane becomes available, the Martins and Convairs do have a definite place and will be used more and more by the carriers.

It may be we need more than one new airplane type. Almost without exception every means of transportation has available to it units of varying size to meet the requirements of traffic over routes of varying classes of traffic. In aviation we can not, like a railroad, add on another car or two to the string. Nor like the highway conveyances develop a thousand different variations out of one basic machine. In the local service field, out of the 175 aircraft being operated, all but 10 are DC-3's. In many cases the Douglas DC-3's serve routes where only one daily round trip is provided with seldom more than four or five seats

DALLAS *third in the nation* among local air service traffic centers!

FLIGHT MAGAZINE'S survey shows only Chicago and New York topped Dallas in passengers boarded by local service carriers in 1954.

In the Southwest Dallas holds a wide margin of leadership:

CITY	RANK IN REGION	PASSENGERS BOARDED
Dallas	**1**	**58,637**
Houston	**2**	**38,037**
Ft. Worth	**3**	**19,396**
Austin	**4**	**19,090**
Midland	**5**	**18,101**

With 41% of U. S. population, Dallas always generates more than

2.0% of U.S. enplaned air passengers

1.7% of U.S. O & D passengers

3.3% of U.S. enplaned air mail

2.4% of U.S. enplaned air freight and express

Dallas *consistently* supports the air transportation industry — trunkline and local service carriers alike — far out of ratio to its population.

The *convenient availability* of air services at Dallas Love Field — Dallas' airline airport since 1926 — is a major factor in Dallas' extraordinary contribution to the Nation's air transportation system.

DALLAS LOVE FIELD

Symbol of Airport Progress

MOHAWK Airlines Inc.

Initiates Convair 240 Service.

Joins The 14 Airlines Who Standardize On Airwork As Their Factory Authorized Overhaul Base.

☆ DID YOU KNOW ☆ ☆ ☆

One of our airline customers has CAA approval for 1600 hours operation between Airwork overhauls . . . and this may soon be extended to 1700 hours?

Another airline customer has operated for over 24,000 hours without a single premature removal . . . and is still piling up hours?

CALL AIRWORK FOR A PROFITABLE SOLUTION TO YOUR FLEET OVERHAUL PROBLEMS

BRANCHES IN—
ARLINGTON, ATLANTA,
MIAMI, NEWARK.

Airwork CORPORATION
Millville, New Jersey

Other routes have from seven to twenty round trips daily and every seat is occupied.

In local airline service the frequency of scheduling is more vital to traffic development than it is to the trunk airlines. Infrequent schedules leave wide gaps in time where potential air travelers find it faster and more convenient to use autos than to wait for the next scheduled flight on trips up to 200 or 300 miles. Yet over 80 per cent of local service route segments have three or less daily round trips and 70 per cent have two or less round trips. So the DC-3 is too large for some routes and too small for others. It has been FLIGHT MAGAZINE's contention for years that perhaps we need more than one new airplane type to adequately handle the requirements of every local service airline. We can think of two, or possibly even three types. In capacity these aircraft should probably fall into a 6-12 passenger, an 18-28 passenger and a 35-50 passenger airplane.

At least one of these categories may be satisfied by the Fokker F.27 "Friendship" which is due to fly next August and may be built in this country by Fairchild. The F.27 certainly comes close to the specifications agreed on by the local carriers. Yet neither the designer nor the potential builder has received much display of interest or encouragement from the potential market. It's up to the carriers to take the initiative and not stand idly by with the idea that somebody will someday come along to solve their equipment problem for them. It just costs too much money to pioneer air transports and the historical record shows aircraft companies never got fat just building transports for the airlines.

You can get a lot of argument on the proposal to build a smaller airplane for certain operations. An efficient 6-12 passenger job would be particularly suited for use on our low-density routes which are vitally needed in various areas of the globe though they probably always will be low-density. Or, the smaller airplane could be used to introduce a new schedule added over

LOCAL SERVICE AIRLINES
Comparison of Average Passenger Loads

Carrier	1953	1954	Increase
Allegheny	9.30	10.59	1.29
Bonanza	9.38	10.29	0.91
Central	3.45	4.70	1.25
Frontier	7.51	8.61	1.10
Lake Central	5.20	6.27	1.07
Mohawk	10.66	13.00	2.34
North Central	8.86	9.21	0.35
Ozark	6.95	8.66	1.71
Piedmont	9.65	9.98	0.33
Pioneer	13.00	12.06	(0.94)
Southern	6.43	7.40	0.97
Southwest	13.19	14.93	1.74
Trans-Texas	5.93	6.82	0.89
West Coast	8.25	9.51	1.26
Average	8.63	9.53	0.90

LOCAL SERVICE AIRLINES
Comparison of Revenue Express and Freight Ton-Miles Flown
1953-1954

Carrier	1953	1954	% Increase
Allegheny	129,256	132,621	2.6
Bonanza	51,796	53,408	3.1
Central	43,010	56,811	32.1
Frontier	491,027	517,353	5.4
Lake Central	80,093	95,960	19.8
Mohawk	139,359	138,752	(0.4)
North Central	161,963	194,722	20.2
Ozark	61,168	82,890	35.5
Piedmont	284,228	260,737	(8.3)
Pioneer	198,435	207,109	4.4
Southern	73,507	83,001	12.9
Southwest	151,141	122,806	(18.8)
Trans-Texas	144,118	185,016	28.4
West Coast	68,375	70,871	3.7
Totals	2,077,476	2,202,057	6.0

LOCAL SERVICE AIRLINES
Comparison of Total Revenue Ton-Miles Flown
1953-1954

Carrier	1953	1954	% Increase
Allegheny	3,214,999	4,267,069	32.7
Bonanza	1,564,606	1,757,610	12.3
Central	683,772	951,511	39.2
Frontier	3,748,222	4,385,700	17.0
Lake Cent.	876,573	1,174,111	33.9
Mohawk	2,633,145	3,981,627	51.2
North Cent.	3,906,138	4,870,173	24.7
Ozark	2,055,447	2,536,218	23.4
Piedmont	5,869,922	6,339,040	8.0
Pioneer	4,254,920	4,611,686	8.4
Southern	2,014,000	2,369,389	17.7
Southwest	3,810,827	3,842,551	0.8
Trans-Texas	2,238,801	3,264,324	45.8
West Coast	2,754,364	2,811,479	2.0
Totals	39,625,736	47,162,488	19.0

LOCAL SERVICE AIRLINES
Comparison of Total Non-Mail Revenue
(Cents Per Revenue Mile)
1953-1954

Carrier	1953	1954	% Increase
Allegheny	64.63	72.26	7.63
Bonanza	57.14	63.03	5.89
Central	20.90	28.67	7.77
Frontier	45.84	52.82	6.98
Lake Central	33.15	41.31	8.16
Mohawk	77.05	91.81	14.76
North Central	56.37	66.73	10.36
Ozark	40.55	53.38	12.83
Piedmont	63.18	65.60	2.42
Pioneer	79.53	76.41	(3.12)
Southern	39.88	46.06	6.18
Southwest	76.59	90.73	14.14
Trans-Texas	36.38	41.75	5.37
West Coast	47.49	54.45	6.96
Average	54.23	61.56	7.33

LOCAL SERVICE AIRLINES
Comparison of U. S. Mail Ton-Miles Flown

Carrier	1953	1954	% Increase
Allegheny	70,456	72,996	3.6
Bonanza	23,164	26,794	15.7
Central	40,479	55,516	37.2
Frontier	101,232	195,078	92.7
Lake Central	23,568	31,843	35.1
Mohawk	33,759	43,888	30.0
North Central	112,505	175,149	55.7
Ozark	43,152	52,918	22.6
Piedmont	107,689	109,868	2.0
Pioneer	120,282	142,495	18.5
Southern	80,050	83,690	4.6
Southwest	80,855	73,210	(9.5)
Trans-Texas	92,869	126,202	35.9
West Coast	45,943	38,091	(17.1)
Totals	976,003	1,227,738	25.8

LOCAL SERVICE AIRLINES
Comparison of Break Even Needs
(Cents Per Revenue Mile)

Carrier	1953	1954	Decrease
Allegheny	55.44	45.42	10.02
Bonanza	51.07	47.54	3.53
Central	99.83	94.70	5.13
Frontier	61.62	59.77	1.85
Lake Central	91.89	81.52	10.37
Mohawk	35.27	21.48	13.79
North Central	58.57	41.13	17.44
Ozark	74.08	58.32	15.76
Piedmont	29.78	32.18	(2.40)
Pioneer	57.57	33.25	24.32
Southern	65.69	58.05	7.64
Southwest	41.98	33.56	8.42
Trans-Texas	65.46	58.25	7.21
West Coast	51.09	52.34	(1.25)
Average	56.49	48.05	8.44

routes generally requiring larger capacities and as a plane to extend local service to more and more smaller communities and into new areas where the only way air service can be pioneered is to try it out on a modest basis. But the major dilemma lies within the major replacement airplane for the DC-3. Considerably more study and concern, together with imagination, is going to have to be demonstrated by the carriers than has been obvious during recent years if the happy solution to the problem is to come in time. We think the breathing spell between permanent certification, now an actuality, and the solution to the equipment problem, is going to be a mighty short one. Perhaps now with the fight for permanent certification out of the way, our local service management can get down to the next big hurdle — that of acquiring modern and efficient fleets of airplanes which alone can keep the people beating a path to their doors in a volume and at a profit large enough to avoid permanent subsidies.

★ ★ ★

LOCAL SERVICE AIRLINES
Comparison of Total Operating Expense
(Cents Per Revenue Ton-Mile)

Carrier	1953	1954	Decrease
Allegheny	126.94	111.63	15.31
Bonanza	114.87	107.31	7.56
Central	326.91	240.05	86.86
Frontier	126.20	114.60	11.60
Lake Central	233.84	191.20	42.64
Mohawk	109.46	87.57	21.89
North Central	126.25	116.16	10.09
Ozark	167.52	130.59	36.93
Piedmont	93.86	96.38	(2.52)
Pioneer	102.07	87.82	14.25
Southern	158.43	136.15	22.28
Southwest	88.53	82.90	5.63
Trans-Texas	161.09	138.78	22.31
West Coast	126.18	118.92	7.26
Average	125.30	112.60	12.70

LOCAL SERVICE AIRLINES
Number of Scheduled Aircraft
4th Quarters, 1953 and 1954

Carrier	1953	1954	Increase
Allegheny	13	15	2
Bonanza	5	5	—
Central	5	7	2
Frontier	12	12	—
Lake Central	7	7	—
Mohawk	10	10	—
North Central	18	18	—
Ozark	11	11	—
Piedmont	15	15	—
Pioneer	10	13	3
Southern	10	10	—
Southwest	9	10	1
Trans-Texas	15	16	1
West Coast	12	12	—
Totals	152	161	9

LOCAL SERVICE AIRLINES
Number of Employes
Year 1954

Carrier	Beginning of Year	End of Year	% Increase
Allegheny	486	542	56
Bonanza	208	217	9
Central	304	337	33
Frontier	556	593	37
Lake Central	291	262	(29)
Mohawk	328	354	26
North Central	620	639	19
Ozark	386	378	(8)
Piedmont	661	653	(8)
Pioneer	396	404	8
Southern	412	404	(8)
Southwest	323	290	(33)
Trans-Texas	519	525	6
West Coast	351	370	19
Total	5,841	5,968	127

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Here is Ray Parker measuring the wing contour work performed on Vance Breese's Bonanza. Parker heads AiResearch's new "speed-range" department. He was formerly engaged in extensive boundary-layer research with Dr. Gus Raspet, renowned aerodynamist, in the world-famous aerophysics department at Mississippi State College.
—(AiResearch Photo.)

Drag reduction gives Bonanza 1,503 miles on 60 gallons of fuel at 167-mph. speed

Wing Contouring for Speed and Range

THE exterior surfaces of the wings of any quantity-produced aircraft (which means 99% of all planes) look smooth and slick when a new aircraft is delivered. But they are not absolutely perfect, aerodynamically speaking, and therein lies a subject that has been of historical interest in aviation circles.

If you look closely, or run your hand over the wing surface, you'll find more rivets that aren't flush, and more ridges in the metal, than you had previously supposed were there. Now, you won't be making a world-shaking discovery, because the aviation world has always known about this all-too-prevalent condition. But you will realize that quantity-production wing surfaces are not 100% perfection.

This always causes the same old question to be asked: How important is it, if your aircraft's wings are not 100% aerodynamically perfect?

The Garrett Corporation's AiResearch Aviation Service division at Los Angeles International Airport thinks it is mighty important. So important that they have established a "speed-range" department, staffed with special crews, to correct the seemingly minor discrepancies in wing contours.

As Jack O'Brien, manager of AiResearch Aviation Service puts it, "mass-produced wings have protruding edges and flat areas that shouldn't be there. This means the wings provide less lift and more drag, and these two items add up to less range for your aircraft, whether it's a small private craft, or a big airliner."

Although the new project is called the "speed-range" department, speed, as such, is a minor consideration and incidental to the final result — which is greatly extended range. To be more specific, if you are going on a fairly extensive trip, it doesn't matter too much whether you go at 162 mph. or 168 mph., but it does make you light up when you realize you can go the whole distance in one hop of, say, 700 miles, than have to stop and refuel and take off again after having

This group smiles to show happiness over results in improved Bonanza performance obtained with first AiResearch speed-range modifications. Left to right are Ray Parker; Army Alcorn, 4th Region CAA chief of engineering; Vance Breese, aero engineer whose Bonanza was the "guinea pig"; and Ed Ryder, AiResearch Aviation Service assistant manager (Jack O'Brien, manager, was off selling a Twin-Bonanza speed-range modification).
—(AiResearch Photo.)

These views show Bonanza wing undergoing rework before (left) and after painting. Filler is added to restore uninterrupted wing surface for near-perfect boundary-layer control. "Slicking" alone is not sufficient — contouring as well as surfacing is involved. Drag-reduction modifications are also made around engine air intake and cowl-flap openings.
—(AiResearch Photo.)

gone, say, 580 miles. As any flier knows, stops are expensive. To put it in a stronger way, sometimes you just miss making your trip in one jump because your safety margin in gas is too thin for comfort. Now with the same aircraft, and some wing-contouring by Aviation Service, you can make it — safely.

What made AiResearch take a stand on this much-discussed theory stemmed from the results of long experimentation by the company and by Vance Breese, noted aeronautical consulting engineer, as well as Ray Parker, well-known research and test pilot, who worked for many years on boundary-layer control with Dr. August Raspet, director of aerophysics at Mississippi State College.

Breese and Parker, working on Breese's Bonanza, discovered that after contouring the wing and modifying other parts of the plane, they had increased the Bonanza's range by a whopping 30%. Breese reports that he can now fly his plane 1,503 miles, cruising at 167 mph. for 9 hours — a vast improvement over its previous performance. He has 60-gal. gas capacity. His cruising altitude for maximum range is 12,000 ft.

This performance means he is obtaining, because of refinements to his Bonanza, a true air speed of 167 mph. at a fuel consumption of only 6.6 gals. per hour. This equals 25.3 miles per gallon — an amazing accomplishment considering his high rate of cruising speed.

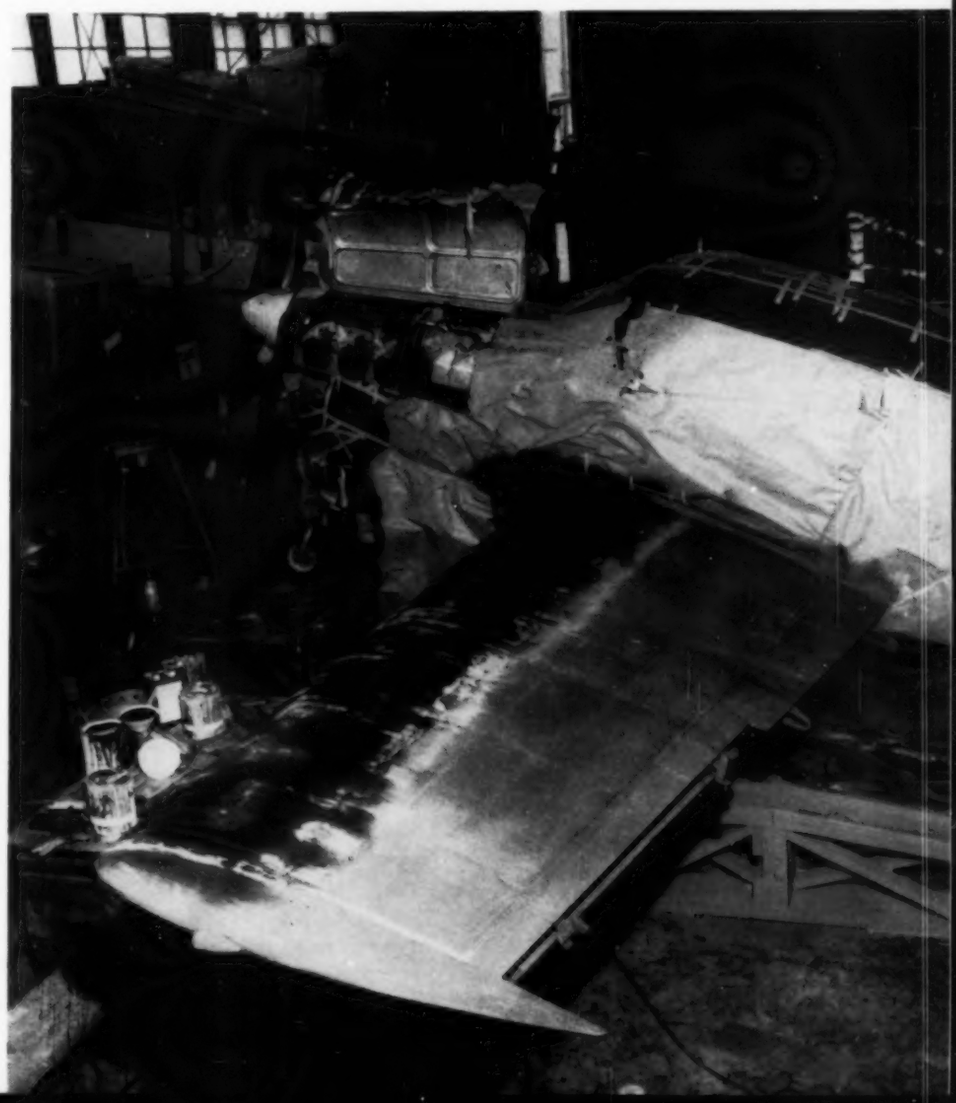
The Civil Aeronautics Administration has approved the AiResearch modifications, some of which are: an extension to the cowl flap which was creating extra turbulence under the plane; special nose cowl ducts to control the flow of cooling air through the air intakes; additional plates to fill in the nose cowl near the base of the spinner, as well as filling in the gap between the spinner and blades of the propeller.

AiResearch formed the unusual "speed-range" department, after their success with Breese's craft, and have trained special crews under Ray Parker's guidance to commence wing-contouring and modification on other ships coming in. At present two single-engine Bonanzas have been completed, with a twin-engine Bonanza being worked on at the moment.

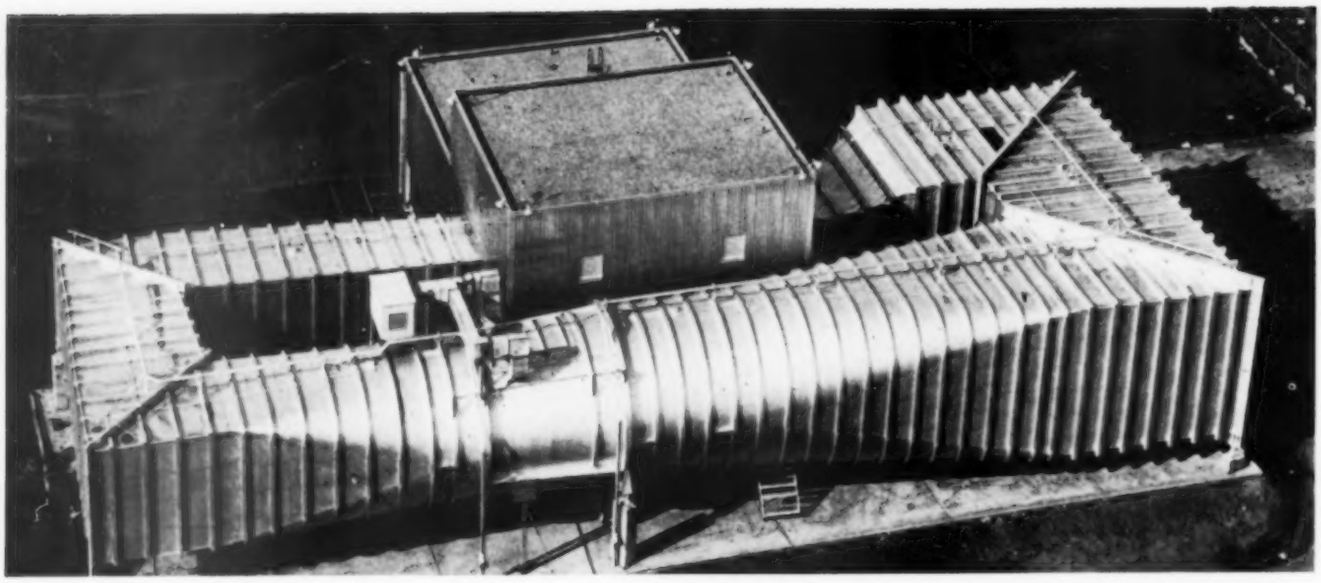
Breese and Parker feel strongly about the whole subject of aerodynamically-perfect wings and planes. They figure that the improvement which could be wrought on larger planes would be much greater, because of the vast wing areas involved, and therefore greater turbulence and resultant drag from irregular wing surfaces.

Left-handed proof of this point appears in the common knowledge that

(Continued on page 88)



AiResearch performs wing contouring work without removing wing from Bonanza. As shown here in the shop, wing re-surfacing extends back about 35 per cent. Champion sailplane performers have been doing this same work for years. It has also been performed by Dr. Gus Raspet at Mississippi State College on several lightplanes, including the Navion. He also was engaged on the Learstar Lockheed project. Bigger dividends are expected on transport rework.
—(AiResearch Photo.)



Steel wind tunnel at Chance Vought is 150 ft. long and is cooled during the summer by an exterior water sprinkling system. —(Chance Vought Photo.)

Chance Vought's New Wind Tunnel

CHANCE Vought Aircraft's newest Navy fighter is supersonic and so are its Navy missiles, but important flight characteristics of both are studied in the new $900,000 wind tunnel which the company began operating in Dallas last month. It is a low-speed wind tunnel — first of its kind in the Southwest — and it is used to investigate landing and take-off behavior of high-speed aircraft.

Models of planes and missiles placed in the tunnel's 7 by 10-ft. throat are subjected to winds up to 200 mph.

One man can operate the new tunnel, which has all controls centered on a single panel.

Data obtained from these tests may be used for satisfactory prediction, says Chance Vought, of flight characteristics up to 500 mph. For supersonic wind tunnel tests, Chance Vought uses other facilities about the country.

Even though the tunnel is for slow wind speeds, it uses a 1,500-hp. electric motor and generates its wind with a 20-ft. spruce propeller. The rectangular steel tunnel itself is 150 ft. long. It has vanes in its four corners to direct the wind around turns with a smooth flow.

In the hot summer months, the tunnel needs cooling and this is furnished by a sprinkling system which sprays water over the exterior of the shell at a rate of 800 gals. per minute. The water is caught in a concrete basin, run through a cooling tower, and re-used. The cooling tower capacity is large enough to equal the air conditioning units for 150 homes.

Aircraft models 10 to 20 per cent of actual size are tested in the tunnel throat. They are mounted on three struts linked to a 15,000-lb. balance system which measures lift, drag, stability and control, loads on control surfaces and pressures over contours. Only one man is needed to operate it because all controls are mounted on a central panel. Gun cameras and still cameras are used to record aircraft behavior as the models are rotated through an arc of 90 degrees or put into dives or climbs of as much as 60 degrees. Loads as small as four-tenths of a pound or as large as two tons can be measured by the sensitive balance system.

Although this is a supersonic era, high-speed aircraft still require low-speed tunnel testing because of increasing problems encountered. Chance Vought engineers say they can predict performance to within a few miles per hour and handling characteristics of various maneuvers through use of the new tunnel. ★ ★ ★

This is the 20-ft. spruce fan, driven by a 1,500-hp. electric motor, of the new wind tunnel.

Larson D-1 uses Continental, Lycoming or Jacobs engine, Ford automotive wheels and tires and industrial wheel on tail for operation as workplane with 1,000-1,500-lb. payload.
—(Larson Photo.)

Another Design for Aerial Applicators

WHAT with war-surplus Stearmans being used up fast and becoming difficult to locate in top condition even at high prices, the pressure is on the aerial applicator industry for a good replacement agricultural airplane. One of many experimentals now being developed by operators is the Larson D-1 of the Larson Aero Development Company, Concord, California. It is an original new design but it utilizes not only war-surplus and plentiful 220-225-hp. radial engines which powered the Stearman but many other standard and inexpensive items such as Ford automotive wheels, rims and tires, Ford automotive wheel brakes with Chevrolet innards and simplified construction.

The Larson ag plane is said to have a 3,600-lb. maximum gross weight at an empty weight of only 1,700 lbs., which would give it a 1,900-lb. useful load of which more than 1,500 lbs. could be pure payload after allowing for fuel, oil, pilot and equipment.

Performance includes 40-mph. landing speed, 90-mph. cruising speed, 600-ft. take-off with 1,000-lb. payload and no wind and 1,400-fpm. rate of climb at empty weight.

Proposed price is $9,000 less the power package and propeller but including a 27-cu. ft. hopper.

The experimental was first flown last March and Merle D. Larson, general manager of the firm, says it has worked out nicely. He expects to build 100 of the planes and may locate his production somewhere in the Midwest, having found midwestern chambers of commerce interested in obtaining his activity for their communities.

"This airplane is intended as a successor to the Stearman with Stearman operators as its prime prospects," Larson said. "It will be the only new-production biplane available in the middle-size category of 1,000 to 1,500-lb. payload. Also, it is the only new-production airplane designed for the 220-225-hp. surplus radial engines used on the Stearman — these Continentals, Lycomings and Jacobs engines are wonderful for reliability and long life."

Larson estimates market demand to be 700 airplanes a year but predicts it will double within a few years. He says the foreign demand is unknown but expects it could exceed the U. S. market if developed.

Everything ahead of the firewall on the Larson D-1 is "as removed from war-surplus Stearmans" — engine mount, oil tank, accessories, cowling, exhaust system, engine and propeller, with choice of 225-hp. Lycoming R-680, 225-hp. Jacobs R-760 or 220-hp. Continental R-670.

Span is 33 ft., chord 5 ft., wing area 315 sq. ft., wing loading 11.4 lbs. per sq. ft., power loading 16 lbs. per hp., and fuel capacity 30 gals.

Top wings are braced with four lift struts and lower ones are braced with two interplane struts — there

(Continued on page 88)

High-lift, low-drag wings use mid-span ailerons on all panels and the airplane has no wing center section. If aft fuselage is covered, conventional fin and rudder will be used.
—(Larson Photo.)

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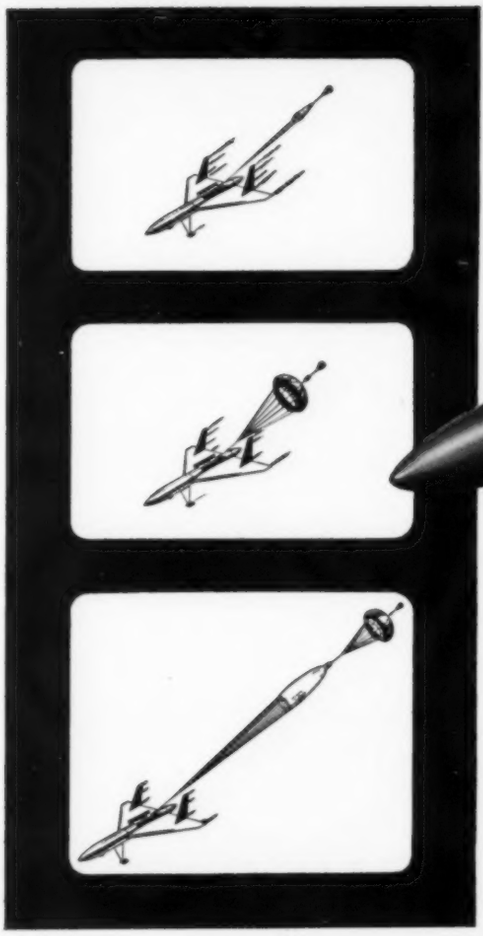
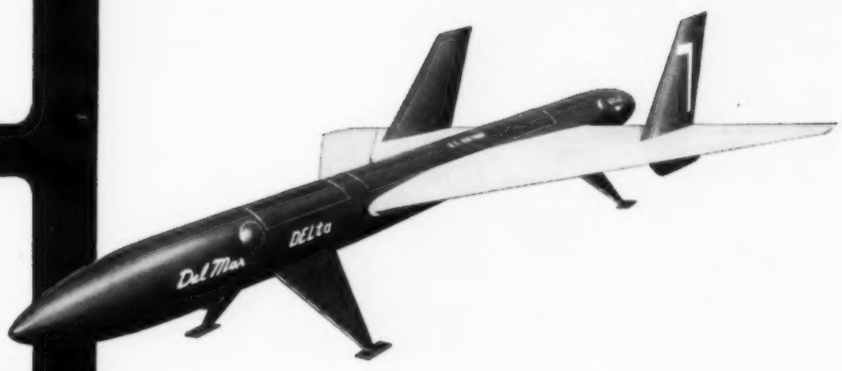
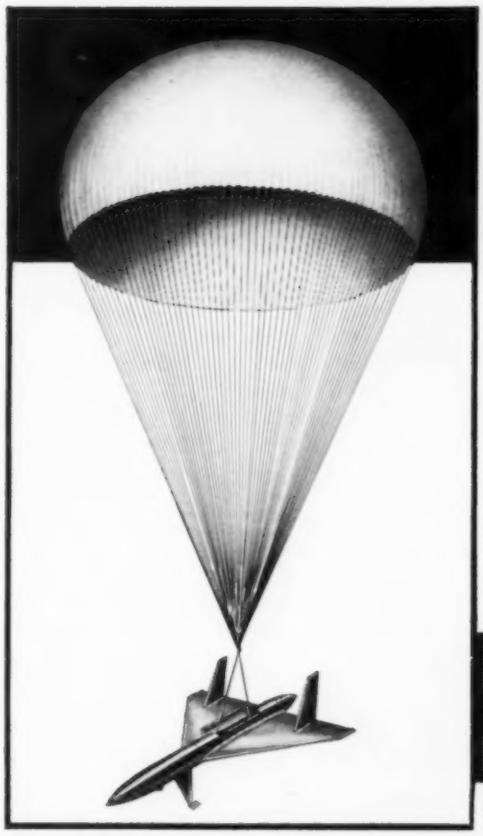




The Use of the DEL MAR DELta Aerial Tow TARGET permits Assessment and Evaluation of MISSILE WEAPONS SYSTEMS!

DEL MAR DELta recovered by PIONEER PARACHUTES



Perfection of America's arsenal of rockets and guided missiles is being accomplished efficiently and economically in the Air Force Missile Development Program.

In this instance the Del Mar DELta high speed, high altitude tow target provides a stable platform to carry Miss-Distance Indicator Systems for missile evaluation programs and is fully recovered from the air by Pioneer parachutes, to be used over and over again.

This is one of the many examples where the Taxpayers' money is used wisely by the Armed Forces. The design and manufacturing facilities of both the Del Mar Engineering Laboratories of Los Angeles, and the Pioneer Parachute Company have combined to serve both the Armed Forces and the nation's economy.

Pioneer engineers are constantly working with engineers of aviation companies, as well as the U.S. Air Forces, developing and manufacturing special parachutes for special uses. We are ready to serve you—our engineering staff is available for consultation wherever you may be located.

PIONEER PARACHUTES MAKE THE DIFFERENCE!

PIONEER PARACHUTE COMPANY, INC.
MANCHESTER, CONNECTICUT, U. S. A.
Cable Address, PIPAR

IN CANADA • Pioneer Parachute Company of Canada Limited • Smiths Falls, Ontario
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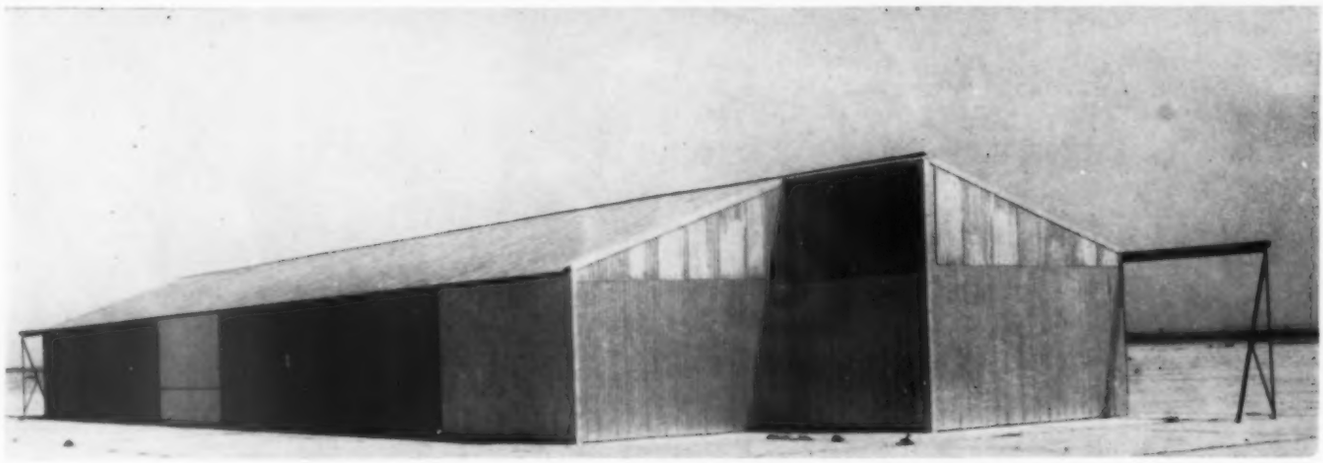


With a $50,000 revolving fund, the Nebraska Department of Aeronautics is constructing 41 T-hangars and 5 shop facilities at 10 municipal airports, with the cities repaying the cost out of rent over a 10-year period. Each city puts up 20% of the cost of its T-hangars, the state 80%.

Nebraska's State T-Hangar Program

State financing allows cities to pay for hangars out of rentals

WHO wants to buy a good airplane unless he can obtain hangar storage for it? Airport managers and operators the country over have heard that question and few have been able to come up with a solution to the problem. Without storage facilities, aircraft sales fall off and the usefulness of airports becomes limited.

There has been one way to approach the problem, however, and the Nebraska State Department of Aeronautics is making the most of it. It perfected a plan under which the state of Nebraska is building T-hangars on municipal airports which can not build them but which can rent them and in turn pay the state out of rent, with repayment terms up to 10 years.

As of early in May, agreements had been signed by the Nebraska Department of Aeronautics with 10 cities involving the construction of 41 T-hangars and 5 shop facilities.

Construction had been completed on 24 T-hangars and 2 shops at 6 cities. At the other four cities, construction was to be completed within 60 days.

"In each case," reports Jim Ramsey, director of the Nebraska Department of Aeronautics, "aircraft ownership has definitely increased in the towns affected. Increases have ranged from 20 to 300 per cent. We believe these increases will occur at all of the cities involved in the program."

Ramsey discussed the background of the program to show how it originated. Lack of suitable aircraft storage facilities has become one of the major problems facing airports. Studies show that, in general, the following conditions exist:

1. The potential purchaser of an airplane was deterred from such a purchase because (a) he did not want the airplane tied down outside, (b) the extra money required to build a suitable hangar made the whole deal uneconomical and (3) he did not wish to construct a building on publicly-owned land.

2. The individual cities, while recognizing the need for storage, did not have adequate funds available for necessary construction.

3. Either the city was legally unable to borrow the money or there were no lending agencies willing to make the necessary funds available (both conditions existed in most cases studied in Nebraska).

Convinced that more storage would bring more airplane ownership on the airports, the Nebraska Aeronautics Department conceived the idea of the state building hangars on municipal airports with the cities purchasing the hangars within a period of 10 years, making periodic payments from the hangar rentals.

An experimental program was set up in which the Aeronautics Department established a $50,000 revolving fund. It then studied various T-hangar designs available and with several steel companies it designed a T-hangar costing about $1,000 per stall under the market price — one which would make it possible for the city to charge only $10 to $15 per month per stall to operate, maintain and completely pay off the hangar within 10 years.

Agreements were drawn up whereby interested cities could enter into contracts with the state of Nebraska for the erection of T-hangars. The basic provisions of the contract were as follows:

1. State will participate in T-hangar construction up to $1,500 per stall or 80% of the actual cost, whichever is the lesser.

2. The state will participate in shop hangar construction up to $4 per sq. ft. or 80% of the final cost, whichever is the lesser.

3. The individual cities are required to put up 20% but this may be composed of labor, materials or cash.

4. The state will retain title to the building until final payment is made.

5. The city will remit monthly payments calculated to repay the state in 10 years.

6. The city has the privilege of completely paying for the hangars at any time and if they choose to make the complete payment within 5 years, they will receive a 5% reduction on the cost of the hangars.

Interested parties may obtain full information on the program and copies of lease agreements used from James D. Ramsey, director of the Nebraska Department of Aeronautics, Lincoln.

NEW CONSTELLATION SIMULATORS

...open greater safety and economy opportunities for world airlines!

Actual experience by major world airlines and the U.S. Military Services has proved that it is sound, conservative economy for an operator who is spending millions for new equipment to invest, at the same time, in a Simulator. Use of a Simulator is faster and more effective in developing skilled, coordinated crews than flight itself, and from cost comparisons reported by airlines and the Military, reduces crew familiarization expense to a small fraction – with never a risk to manpower or aircraft!

A Simulator and the crew compartment of the plane it represents, are identical. In the Constellation Simulators, built by Curtiss-Wright, pilots and crew members, without leaving the ground, can thoroughly familiarize themselves with all flight characteristics of the airplane...can master every leg of their routes in any part of the world, navigate by radio aids or instruments through all the changes of weather in all the seasons of the year, build up experience that pays off in lower operating costs and a prouder safety record for the airline.

Only through electronics is such flight reproduction possible. Only Curtiss-Wright with basic patent rights in this field, and its licensees, build Simulators and Duplicators for both the Armed Services and commercial airlines of the world.

YOUNG MEN! JOIN THE U.S. AIR FORCE
Investigate Career Opportunities
At Your Nearest Recruiting Office

ELECTRONICS DIVISION
CURTISS-WRIGHT
CORPORATION · CARLSTADT, N. J.

CURTISS-WRIGHT DEHMEL TRAINING EQUIPMENT LICENSED UNDER BASIC PATENTS OF R. C. DEHMEL & CURTISS-WRIGHT. CANADIAN LICENSEE: CANADIAN AVIATION ELECTRONICS LTD., MONTREAL. BRITISH LICENSEE: REDIFON LIMITED, LONDON.

The Tri-Pacer at left was delivered on May 10 at Lock Haven, Pa., as Piper's 40,000th commercial-type airplane. Shown accepting it from Manufacturer W. T. Piper, Sr., is Harold Wagner, president of the Mix-Mobil Corp., Portland, Oregon. He ferried it back to Oregon for another customer while waiting for a twin-engine Apache he had ordered — the sixth Piper Wagner has owned.
—(Piper Photo.)

Milestone for Piper

THE sign painted on the Tri-Pacer pictured above says it is the 40,000th airplane delivered by Piper Aircraft Corporation. Thus the company headed by personable W. T. Piper, Sr., shown on the left in the picture, has reached a milestone of great significance not only to the business plane manufacturing industry but to thousands of fixed-base operators and pilots throughout the world.

When Piper No. 40,000 rolled off the production lines at Lock Haven, Pennsylvania, on May 10, 1955, the figures behind it covered a span of 27 years of building and delivering private planes — beginning with the first Kinner-powered Taylor Chummy. Only six of those aircraft were built before the first E-2 Cub was flown in 1931.

Biggest production of any single Cub model was the famous J-3, with 40 to 65-hp. engine. Total production of this model was 14,125 J-3's — with an additional 5,673 military versions being built to serve the armed forces during World War II as the familiar L-4. The firm's "Cub" model now is a "Super Cub" and it is powered by a 150-hp. Lycoming engine, being used chiefly as a workplane in agricultural, patrol, training, uranium hunting and general ranch work.

Piper Aircraft Corporation this year has become a "big business" operation in many respects and is literally bursting at the seams of its plant, which is undergoing a major expansion. What has pushed it across the hump into the big business category is its newest airplane design, the twin-engine Piper Apache.

In just over 12 months, more than 200 Apaches have been produced and at $35,000 each they are not only a far cry from the J-3 of old but represent a large financial undertaking by the company which pulled itself up by its own bootstraps with bargain-priced lightplanes. The factory is now gearing to turn out 2 Apaches daily.

During the first 3 months of 1955,

(Continued on page 86)

Pipers are used the world over. This scene shows a Tri-Pacer and a Super Cub operated in the Alps by the Austrian Police Service's rescue activity. With ski gear, they are shown on deep snow of the 9,000-ft. Diablerets Glacier. Both 150-hp. Pipers, they frequently land at altitudes up to 10,000 ft. The planes are of Swiss registry since airplanes cannot yet be registered in Austria.
—(Piper Photo.)

Now Twin-Engine Business Transportation at Practical Cost with the PIPER *Apache*

Now in higher production than any other commercial multi-engine airplane and already in the service of many leading corporations, the twin-engine Piper Apache admirably fills a long-felt requirement for a fast, economical, twin-engine airplane.

Powered with two 150 horsepower Lycoming engines, the Apache cruises 170 mph at optimum altitude yet can land as slow as 52 mph to permit using any existing airport. And since it represents just half the investment of most other twins, there's little wonder that acceptance of the Apache by American business has far exceeded expectations.

If your company already uses single-engine equipment, the Apache might well be the next logical step for round-the-clock utility. If you already operate larger multi-engine equipment, the Apache is an ideal supplement to extend benefits and savings of company air travel to more key personnel more often.

Or if you have not felt, up to this point, that investment in a company airplane was justified, a study of the Apache's unique capabilities, unusual safety features, and substantial money-saving economics may well permit you to revise your estimates.

Your Piper distributor will be glad to help you with such an analysis and demonstrate the Apache to you. For a complete 24-page manual on the Apache write on your letterhead to Executive Sales Department, Piper Aircraft Corp., Lock Haven, Penna.

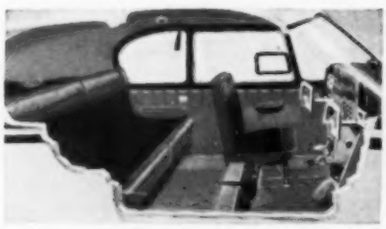
PIPER AIRCRAFT CORPORATION
LOCK HAVEN 4, PENNSYLVANIA

PROVED AND ACCEPTED

Transoceanic flights have *proved* Apache stamina—one flew 3,600 miles non-stop, New York-Paris; a second, non-stop across the North Atlantic; a third, non-stop across the South Atlantic; many to South America. All routine delivery flights!

Here are a few of the hundreds of corporations and individuals who now own and operate Piper Apaches:

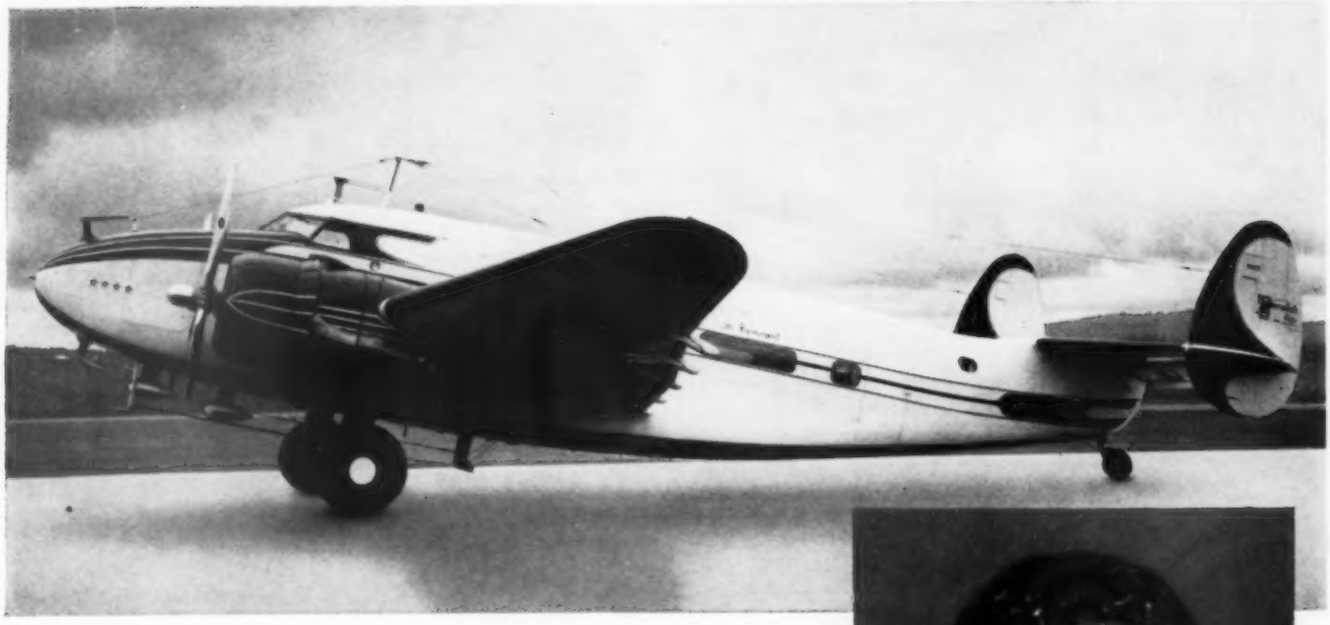
Ashland Oil & Refining Co......Ashland, Ky.
Branyan Drilling Co......Cushing, Okla.
Buttrey Stores, Inc......Minneapolis, Minn.
Clinton Machine Co......Maquoketa, Iowa
Crosley Broadcasting Corp......Cincinnati, Ohio
El Paso Natural Gas Co......El Paso, Texas
Florida Power & Light Co......Miami, Fla.
E. & J. Gallo Winery.....Modesto, Calif.
C. F. Kettering, General Motors Corp....Dayton, Ohio
Miller Construction Co......Windsor, Vt.
Odessa Natural Gasoline Co......Odessa, Texas
Pursglove Coal Co......Clarksburg, W. Va.
Reynolds Metals Co......Richmond, Va.
Sinclair Oil & Refining Co......Caracas, Venezuela
St. Johnsbury Trucking Co......St. Johnsbury, Vt.
United Fire & Casualty Co......Cedar Rapids, Iowa
Uranium Enterprises.....Grand Junction, Colo.



Comfort. Wide rear seat and individually adjustable front seats in quiet, luxurious, spacious cabin make Apache travel truly restful for four people.

Night and Day. Two dependable engines and full instrumentation give the Apache owner round-the-clock, night and day utility. Cruises 170 mph.

On One Engine, Apache maintains 6,750-foot ceiling at gross load; 8,000 to 10,000 feet with average load. Twin-engine ceiling is 20,000 feet.



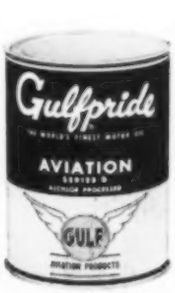
Ask the men with the most experience . . .

ask **Carl C. Forrester, Jr.,**
chief pilot for
E. T. Barwick Mills,
Chamblee, Georgia

Chief Pilot Forrester flies a Lockheed, one of a fleet of ships operated by the E. T. Barwick Mills, world's largest producers of cotton and man-made fiber carpets.

"My company," says Mr. Forrester, "has sworn by Gulf since first obtaining aircraft. I personally have used Gulf products for 18 years. And I believe Gulf's Aviation Oils are the best that money can buy. I can really depend on Gulf oils for a safe and trouble-free flight.

"Gulf Aviation Gasoline, too, has always been a top-quality fuel for my money. Now—with *Micronic Filtration* right at the pumps, it's a cleaner, safer-flying fuel than ever. I get Gulf Aviation products wherever available."



Try these trusted Gulf-quality oils!

If your plane is powered with a horizontally opposed or Ranger in-line engine, your best bet is *Gulfpride Aviation Oil, Series-D.* It's a detergent dispersant oil that cuts down ring- and valve-sticking, high oil consumption, oil-screen clogging, and plug fouling. Pilots who use it say it stretches the time between overhauls as much as 100%.

To get best results with a radial engine, or one that doesn't need a detergent oil, use *Gulf Aircraft Engine Oil—Series-R.* It retards sludge and carbon formation, and retains its body at high operation temperatures. Pratt & Whitney and other aircraft engine manufacturers approve it for all types of services in radial engines.

AND Gulf Aviation Gasoline . . . it comes to you "refinery-clean"—for your safety—from pumps with advanced *Micronic Filters.*

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AVIATION PRODUCTS

Gulf Oil Corporation
Gulf Refining Company

Up front in the Turbo-Prop Race

Allison Model 501 for commercial use develops more power for its size and weight than any other Turbo-Prop engine built today

Pay-off on ten years of Turbo-Prop pioneering is the Allison Model 501 engine, commercial version of the T56 which recently completed the most exacting model test ever required of a propeller-type engine.

Now in production, this engine develops 3750 horsepower, or 2.3 horsepower per pound of weight—a power-to-weight factor better than any other Turbo-Prop engine available today, and almost 2½ times that of contemporary piston engines.

In a typical application, the Allison "501" saves one ton of weight per engine nacelle, and has an engine frontal area of only six square feet—less than half the frontal area of a reciprocating engine with comparable power. Its amazing compactness cuts speed-reducing nacelle drag as much as 60%.

These advantages will enable cargo transports powered with these engines to carry heavier payloads faster at far less cost than present aircraft.

And in passenger operation, smooth-running Allison Turbo-Props will provide quieter, more comfortable flights—and permit speeds better than 7 miles a minute.

Allison Turbo-Props are engines *in being*—not merely on paper. They are the first American Turbo-Props being built and delivered in production quantities, and have to their credit more actual flight experience than all other U.S. Turbo-Props combined.

ALLISON Division of General Motors
Indianapolis, Indiana
Builder of Turbo-Jet and Turbo-Prop Aircraft Engines

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TURBO-PROP ENGINES

More than five-and-one-half million hours of turbine engine flight time . . .

experience where it counts most—**in the air!**

This Army L-23 Beechcraft Twin-Bonanza was photographed on a runway immediately after its pilot landed with wheels retracted. Damage, however, amounted to less than $50 — thus it was not classified as an accident. Instead of a reprimand, its pilot received praise for an excellent job. —(Army Aviation Digest Photo.)

Emergency Safety by Design

In a belly landing, the Twin-Bonanza still has wheels to roll on and prevent costly damage

THE Beechcraft Twin Bonanza pictured above is a sad sight at first glance. Its landing gear has folded and there it sits. But a second look will show it to be the picture of a remarkable airplane, indeed, and the masterful work of a good pilot instead of the blunder of an idiot.

This is an Army L-23 counterpart of the commercial Twin-Bonanza and it came mighty close to being an accident. The airplane was actually landed on a runway the way it is pictured. But there was not enough damage for the Army, which is pretty strict about calling its pilots onto the carpet for damaging its airplanes, to classify it as an accident. Army officers thereupon congratulated its pilot — for saving a valuable airplane from damage.

How It Happened

What happened is that the men at Beech Aircraft Corporation who designed the Twin-Bonanza equipped it with wheels which extend slightly even when retracted — for the sole purpose of enabling the aircraft to roll safely to a stop in an emergency landing with wheels up. But it took an alert and knowing pilot to do it in an actual emergency the way the designers would have it done. Here's what happened, in the words of the excellent *Army Aviation Digest*, edited by Captain Weyman S. Carver of the Army Aviation School at Camp Rucker, Alabama:

According to regulations, an aircraft accident is classed as such only when $50 or more damage is involved, or when personal injuries occur. The L-23 pictured above was landed "wheels up" and the only damage done to the aircraft was the breaking of the antenna arm on the bottom side of the fuselage.

Result? No accident.

Engines Cut on Approach

The pilot of this aircraft experienced material failure when the nose wheel would not extend beyond the half-way position. The pilot elected to make a wheels-up landing on a hard-top runway to minimize damage to the aircraft.

He flew around the field for a considerable time, burning up fuel aboard the plane. While making the turn on his base leg, the right propeller was feathered and ignition switches and fuel valves were turned off.

About 100 yards short of the runway, the left propeller was feathered. All ignition switches and fuel valves were cut off and a check was made to insure that the props were in a position where they would not strike the runway. All electrical switches in the aircraft were turned off.

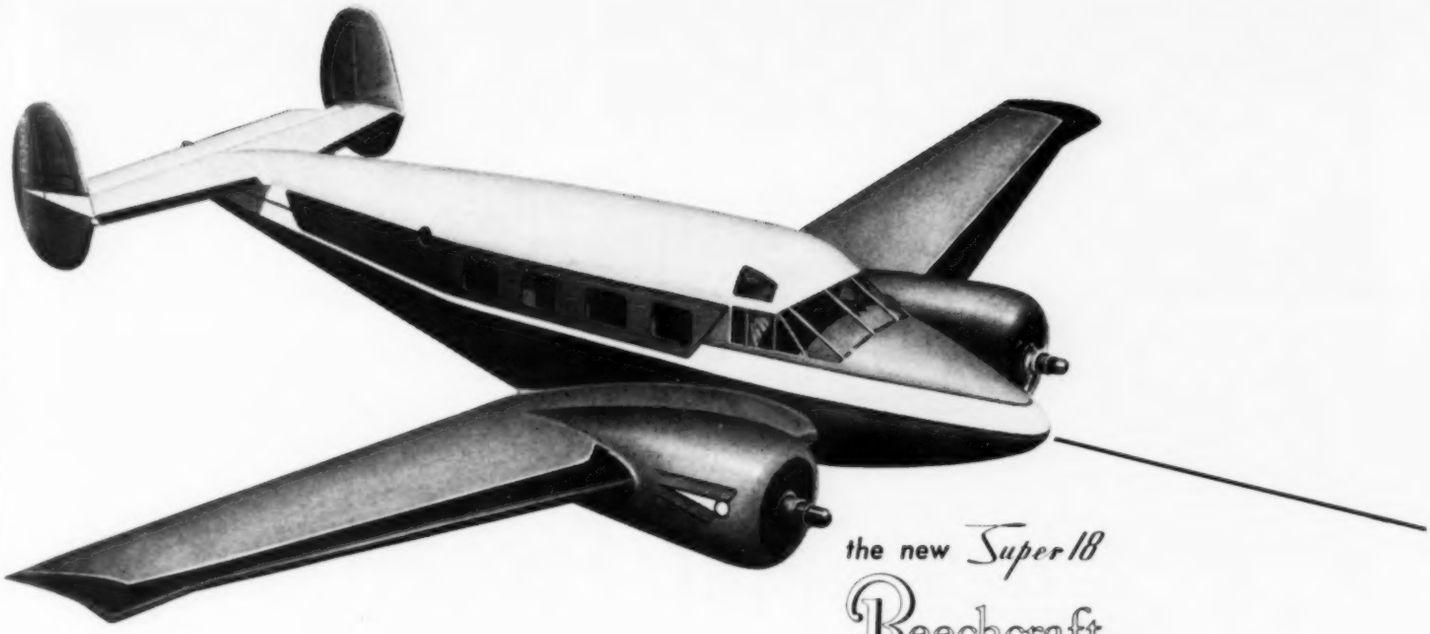
A flare-out was made as in a normal landing. Immediately upon touching the runway, the nose wheel further collapsed, allowing the aircraft to settle onto the main wheels, which were retracted, and the tail skid.

Brakes Useable in Roll-Out

The pilot applied brakes lightly as needed to maintain directional control and avoided striking the runway with the nose of the aircraft.

After sufficient speed was lost, brakes were used to stop the aircraft short of the end of the runway. Immediately upon stopping, the pilot and two passengers evacuated the aircraft through the door, which had been opened prior to landing.

"It is a pleasure to write an article such as this, where the pilot's judgment and skill were beyond reproach," commented the author of the *Digest* story, William R. Gaines, post safety director at Camp Rucker. He discussed the incident in the magazine's "Grey Hare Says" department, which is devoted to aircraft accident and safety activities. "We most assuredly consider landing an L-23 with wheels up, and doing less than $50 damage to the aircraft, the masterpiece of the year. Grey Hare's hat is off to the pilot of this aircraft." ★ ★ ★



the new *Super 18*
Beechcraft

Time for Decision!

Time... the priceless commodity money can't buy... is the only factor restricting the activity of many a corporate executive. The demands for time... to consult plant managers and technicians... to inspect far-flung facilities... to call on business contacts... exceed the working hours available and the physical capabilities of over-worked executives.

In the competitive business world of today, Beechcraft ownership opens the way for business expansion... increases executive activity... *by saving time.* With a Beechcraft, company executives have more time for business and more time for pleasure, too!

The Super 18 Beechcraft is an airplane that can be purchased with confidence... not only in its ruggedness, reliability, and adaptability, but also with confidence that it will deliver the ultimate in comfortable air travel.

You will find owning a Beechcraft is a paying business proposition. A phone call or a note on your letterhead is all that is necessary for a free demonstration by the J. D. Reed Company, Houston, Texas.

J.D. REED CO., Inc.
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HOUSTON, TEXAS

LEADERS OF THE HELICOPTER INDUSTRY are pictured above at the recent meeting of the Aircraft Industries Association's Helicopter Council to open the 11th annual forum of the American Helicopter Society in Washington, D. C. Left to right are M. R. Brown, Piasecki; I. C. Peterson, AIA; Charles Kirchner, Kaman; Albert J. Redway, McDonnell; C. W. Lefever, Fairchild; Jeff McDonald, Hughes Aircraft; Harvey Gaylord, Bell; Don Mockler, AIA; Stanley Hiller, Jr., chairman of the council; B. L. Whelan, Sikorsky; George Neal, attorney; John P. W. Vest, Sikorsky; William Kilpatrick, Sikorsky; E. M. Benham, Sikorsky; J. E. Beighle, Sikorsky, and Jack Leonard, Cessna. —(Aircraft Industries Association Photo.)

Helicopter Forum

AN attendance of over 1,000 helicopter industry and operations leaders from all over the U. S. and from foreign countries was recorded at the recent 11th annual forum of the American Helicopter Society in Washington, D. C. The helicopter air show was held this year at nearby Columbia Island, with numerous different makes of helicopters taking part.

Presentation of annual awards featured the 4-day meeting. Award winners are shown in the pictures at right, in which the Society's awards chairman, C. W. Lefever of the American Helicopter Division of Fairchild, is shown making the presentations. The Alexander Klemin Award, for notable design achievements in rotary-wing aeronautics, went to Bart Kelley, chief helicopter engineer of Bell Aircraft Corporation. The William J. Kossler Award, for outstanding leadership in the use of helicopters, went to Carl Agar, vice president of Okanagan Helicopters of Vancouver, B. C. Honorary fellowships went to Anton Flettner of Flettner Aircraft and to Commander William G. Knapp of the U. S. Navy.

Technical sessions were led by D. M. Plumb of Sikorsky on design and by Bart Kelley on theory and testing, with Clarence Belinn of Los Angeles Airways leading a discussion on operations and B. A. Moe of Allegheny Airlines leading a discussion panel on operations. Fred B. Lee, Civil Aeronautics administrator, was featured speaker at the annual Honors Night dinner.

New AHS officers are Colonel W. B. Bunker, U. S. Army, president; Joe Mashman, Bell Aircraft, secretary, and Hans Weichsel, Jr., Bell Aircraft, treasurer. Regional vice presidents are Robert T. Wood, Kaman, Northeast; Frank MacMahon, Piasecki, Mideast; Major General Frank A. Heileman, USA-Ret., Southeast; Alb B. Ballauer, Parsons Corp., Midwest; Owen Q. Niehaus, Bell, Southwest, and Raymond A. Young, Douglas Aircraft, West Coast.

Committee chairmen were Richard K. Waldo, forum; C. W. Lefever, awards, and Rene Miller, technical sessions. A number of technical papers were presented by helicopter leaders.

★ ★ ★

Bart Kelley, Bell Aircraft

Carl Agar, Okanagan Helicopters

Anton Flettner, Flettner Aircraft

Commander W. G. Knapp, U. S. Navy

—(Bell Aircraft Photos.)

LEADERSHIP!

THERE ARE MORE OF THESE ASSOCIATED AVIATION MACHINES IN OPERATION THAN ALL OTHER AUTOMATIC MACHINES COMBINED!

That's Significant!

AND MORE OF THESE INSURANCE COUNTERS THAN ALL OTHERS COMBINED!

EAST SIDE AIRLINES TERMINAL AND CENTRAL AIR TERMINAL (N. Y.) • ATLANTA BALTIMORE • BOSTON • CHARLESTON CHARLOTTE • CINCINNATI • FT. WORTH KANSAS CITY • KNOXVILLE • LOUISVILLE MEMPHIS • MIAMI • MINNEAPOLIS OKLAHOMA CITY • ST. PAUL • NASHVILLE OAKLAND • PHILADELPHIA • ST. LOUIS WAYNE MAJOR • WILLOW RUN

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ASSOCIATED AVIATION *Underwriters*

Qualified Service makes the FINEST *product* FINER

The Beechcraft owner can well take pride in the fact that he owns and flies one of the finest products of the Aviation Industry. He also has at his disposal the finest national service organization that is qualified by the Beechcraft factory to maintain all Beechcraft models in factory new condition.

At Certified Beechcraft Service Stations you will find skilled and efficient Beechcraft factory trained personnel, adequate equipment and facilities, factory authorized parts and accessories plus economical prices. Certified Beechcraft Service is an additional bonus you receive when you purchase a Beechcraft.

AIRCRAFTCO, INC.
New Municipal Airport
Wichita, Kansas

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Oklahoma City, Oklahoma

ALAMO AVIATION, INC.
Municipal Airport
San Antonio, Texas

ANDERSON AIR ACTIVITIES
General Mitchell Field, Milwaukee, Wisc.
Truax Field, Madison, Wisc.

ATLANTIC AVIATON CORP.
Teterboro Airport, (25 minutes from Times Square)
Teterboro, New Jersey
Logan Airport, East Boston, Mass.

ATLANTIC AVIATION SERVICE
New Castle County Airport, Wilmington, Delaware

BUTLER CO., AVIATION DIVISION
Municipal Airport, Chicago, Ill.

CURREY SANDERS AIRCRAFT CO., INC.
Downtown Municipal Airport, Shreveport, La.

CÜTTER-CARR FLYING SERVICE, INC.
West Mesa Airport, Albuquerque, New Mexico

GRAY AIRCRAFT SVC. CO., INC.
D. A. Cody, Service Mgr.
Love Field, Dallas, Texas

ELLIOTT FLYING SERVICE
Municipal Airport, Davenport, Iowa

ROD MORE AVIATION SERVICES
Cuddihy Field, P. O. Box 556,
Corpus Christi, Texas

ROSCOE TURNER AERONAUTICAL CORP.
Municipal Airport, Indianapolis, Ind.

J. D. REED CO., INC.
Municipal Airport, Houston, Texas

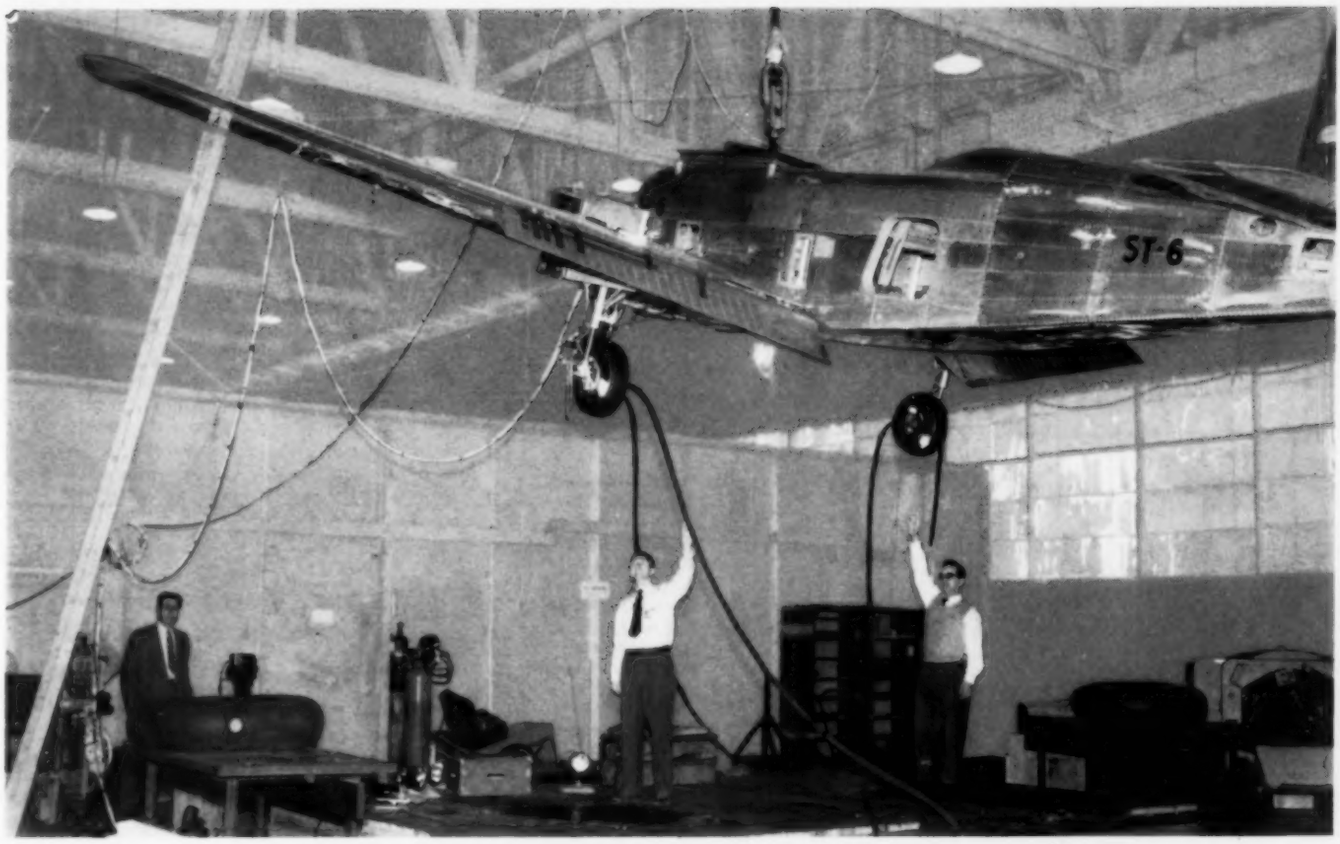
TOPEKA AIRCRAFT SALES & SERVICE
Municipal Airport, Topeka, Kansas

TRADEWIND AIRPORT CORP.
Tradewind Airport, Amarillo, Texas

TULSAIR DISTRIBUTORS, INC.
Hangar 8, Municipal Airport, Tulsa, Oklahoma

WINGS, INCORPORATED
Wings Field, Ambler, Pennsylvania
Philadelphia International Airport, Philadelphia, Pa.

To obtain the best service for your Beechcraft visit the Certified Beechcraft Service Stations listed.



Crash Program

All Beechcrafts are built to Beechcraft's own standards of Safety. These standards are higher than those required by the U. S. Government.

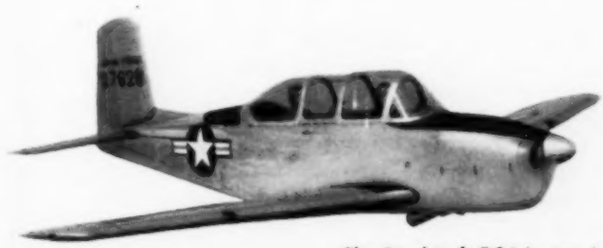
This long-established Beechcraft policy produces airplanes with the "Plus Factor" that means extra safety for their occupants, long life, and freedom from expensive repair bills.

In the case of the Beechcraft T-34B basic trainer for the U. S. Navy, the specifications required a high degree of landing gear ruggedness, to be proved by repeatedly dropping the airplane onto its wheels from a considerable height, at full gross weight.

Progressively more severe drops were made until the Navy requirement was met, and passed. Higher drops of the airplane continued without significant damage. The above photograph shows *the 186th drop test* which successfully imposed loads *74% greater* than the Navy specification, *and without significant failure*. This is another demonstration of the "*Plus Factor*" possessed by Beechcrafts and rendered to their owners, as better service and decreased cost of upkeep.

TO ENGINEERS who are skilled in aerodynamics... or structural design... or flutter and dynamics... or electronics... or physics... or missiles control... or weapons systems, BEECHCRAFT may offer an opportunity that is superior to the average job opening.

BEECHCRAFT is aggressively entering new fields and needs skilled engineers to do creative work of top-level quality in these fields. If you would like to be associated with a leading organization that is large enough to have diversification of product, but small enough to insure recognition of personal ability shown by those who have it, and if you do possess superior skills in the categories mentioned, write today to Beech Aircraft Corp., Employment Div., Wichita, Kans.

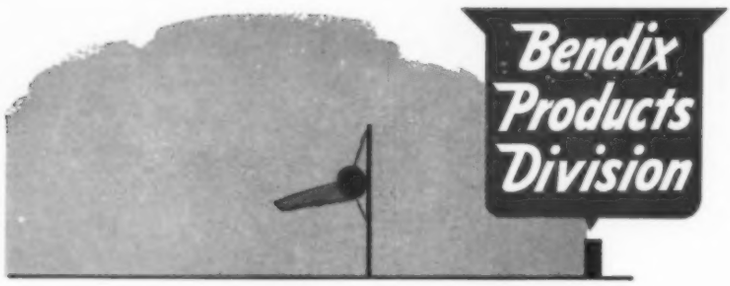


The Beechcraft T-34 is now in production for the U. S. Navy, U. S. Air Force, and the military services of Canada, Chile, Colombia, El Salvador, Japan.

Beechcraft

Beech Aircraft Corporation, Wichita, Kansas, U. S. A.

Beech Builds: USAF T-34 • USNavy T-34 • USArmy L-23 • USAF C-45 • Model 35 Bonanza • Model 50 Twin-Bonanza • Super 18 Executive Transport



Mr. Fixed-Base Operator:

REDUCE YOUR PARTS INVENTORY, INCREASE OPERATING EFFICIENCY . . .

by calling the Bendix Distributor nearest you!

The services of authorized distributors handling parts and units for Bendix* carburetion systems or landing gear equipment can mean a great deal to fixed-base operators.

For by buying through the nearest Bendix Distributor, fixed-base operators can reduce inventory—eliminate follow-up costs—economize on transportation—keep obsolescence at a minimum—reduce product deterioration, insurance, storage space and taxes.

Sounds like a lot to promise, but if you will get in touch with your nearest Bendix Distributor, he will be glad to demonstrate just how the program works. *TRADE-MARK

Airwork Corporation
Miami, Florida

Airwork Corporation
Millville, New Jersey

Aviation Electric Ltd.
Montreal, Canada

W. J. Connell Company
Newton Upper Falls, Massachusetts

General Aircraft Supply Corporation
Detroit, Michigan

Pacific Airmotive Corporation
Burbank, California

Pacific Airmotive Corporation
Oakland, California

Pacific Airmotive Corporation
Kansas City, Kansas

Pacific Airmotive Corporation
Seattle, Washington

Southwest Airmotive Company
Dallas, Texas

Standard Aero Engine Ltd.
Winnipeg, Canada

Standard Aircraft Equipment Co.
Mineola, Long Island, New York

Van Dusen Aircraft Supplies
Minneapolis, Minnesota

Struts, wheels, brakes and Cormetallic brake lining.

Injection and float-type carburetors, direct fuel injection systems.

THE NAME Bendix AVIATION CORPORATION MILLIONS TRUST

BENDIX PRODUCTS DIVISION SOUTH BEND, IND.

CAB POLICY STATEMENT

(Continued from page 29)

of enactment of section 401 (e) (3) and the date of the carrier's application; and (3) the Board may limit the duration of the certificate as to not over one-half of the intermediate points named therein, which points it finds have generated insufficient traffic to warrant a finding that the public convenience and necessity requires permanent certification.

It should also be emphasized that this policy statement does not preclude any party to a permanent certification proceeding from taking a position upon the meaning and application of the statute, or upon the procedures to be followed in processing the applications of the local service air carriers, which differs from the statements contained herein. ★ ★ ★

Local Carriers Getting Permanent Certificates

Allegheny Airlines, Inc., Leslie O. Barnes, President; National Airport, Washington 1, D. C.

Bonanza Air Lines, Inc., Edmund Converse, President; P. O. Box 391, Las Vegas, Nevada.

Central Airlines, Inc., Keith Kahle, President; Meacham Field, Ft. Worth, Texas.

Continental Air Lines, Inc. (Pioneer), Robert F. Six, President; Stapleton Field, Denver 7, Colorado.

Frontier Airlines, Inc., C. A. Myhre, President; Stapleton Field, Denver 7, Colorado.

Lake Central Airlines, R. B. Stewart, President; Weir Cook Municipal Airport, Indianapolis 44, Indiana.

Mohawk Airlines, Inc., Robert E. Peach, President; Cornell University Airport, Ithaca, N. Y.

North Central Airlines, Inc., Hal N. Carr, President; 6201 34th Ave., So., Minneapolis 23, Minn.

Ozark Air Lines, Inc., Laddie H. D. Hamilton, President; Box 1, Lambert Field, St. Louis 21, Mo.

Piedmont Airlines, T. H. Davis, President; Smith-Reynolds Airport, Winston-Salem 1, N. C.

Southern Airways, Inc., Frank W. Hulse, President; 1140 Brown Marx Building, Birmingham, Ala.

Southwest Airways Co., John H. Connelly, President; San Francisco International Airport, San Francisco, Calif.

Trans-Texas Airways, R. E. McKaughan, President; 1221 Commerce Building, Houston 2, Texas.

West Coast Airlines, Inc., Nick Bez, President; Boeing Field, Seattle 8, Washington.

AIR REPORT

(Continued from page 6)

WORLD'S HIGHEST THRUST-TO-WEIGHT RATIO FOR JET ENGINES is probably held by England's new Bristol Orpheus, which has just passed a 150-hour type test during which it achieved a thrust of 3,285 lbs. On the basis of the type-test rating, the Orpheus has a thrust-to-weight ratio of 4.4 lbs. of thrust per pound of thrust, giving it a power

A company
devoted to
a single purpose
turns out a
better product

THIS IS THE REASON WHY DALLAS AIRMOTIVE OVERHAULS MORE AIRCRAFT ENGINES THAN ANY OTHER COMPANY IN THE WORLD

Contractors to private operators, Corporate Industry, The United States Air Force, The United States Coast Guard, The Civil Aeronautics Administration, Local Service Airlines, Trunk Airlines, Friendly Foreign Governments and Airlines.

6114 Forest Park Road, ELmhurst 3771 Dallas, Texas

Introducing the NEW "J" Model . . .

JETCAL
ANALYZER

CHECKS ACCURACY OF
JET ENGINE R.P.M.
and E.G.T. SYSTEMS

With NEW . . .
1) Takcal
2) Potentiometer
3) Ruggedized Galvos
4) Test Circuits

● Of the many factors affecting jet engine life, efficiency, and safe operation, two of the most important are *Exhaust Gas Temperature* (EGT) and *Engine Speed* (RPM). Excess heat will reduce "bucket" life as much as 50% and low EGT materially reduces efficiency and thrust. Any of such conditions will make operation of the aircraft both costly and dangerous. The JETCAL Analyzer predetermines accuracy of the EGT and Tachometer systems and isolates errors if they exist.

JETCAL
ANALYZES JET ENGINES 10 WAYS!

1) The JETCAL ANALYZER *functionally* tests the EGT thermocouple circuit of a jet aircraft or pilotless aircraft missile for error *without running the engine or disconnecting any wiring.* GUARANTEED ACCURACY IS ±4°C. at engine test temperature.

2) Checks individual thermocouples "on the bench" before placement in parallel harness.

3) Checks thermocouples within the harness for continuity.

4) Checks thermocouples *and* paralleling harness for accuracy.

5) Checks resistance of the EGT circuit *without the EGT Indicator.*

6) Checks insulation of the EGT circuit for shorts to ground and for shorts between leads.

7) Checks EGT Indicators (in or out of aircraft).

8) Checks EGT system with engine removed from aircraft (in production line or overhaul shop).

9 Checks aircraft TACHOMETER system accuracy to within ±0.1% between 95% to 102% RPM.

10) JETCAL ANALYZER enables engine adjustment to proper relationship between engine temperature and engine RPM for maximum thrust and efficiency during engine run. (Tabbing or Micing).

ALSO *functionally checks* aircraft thermal switches (OVERHEAT DETECTORS and WING ANTI-ICE systems) by using *TEMPCAL* Probes.

Now in worldwide use. Used by U. S. Navy and Air Force as well as by major aircraft and engine manufacturers. Write, wire or phone for complete information.

JETCAL
B & H INSTRUMENT Co., Inc.
1009 Norwood • Fort Worth 7, Texas

plant weight of less than 750 lbs. This jet will power the lightweight Folland Gnat, the Italian Fiat G 91, the French Breguet Taon and Dassault Mystere 26 and other new scaled-down combat types. It is being further developed for higher thrust output while type tests continue.

MOST OFT-MENTIONED PRICE SPECULATION FOR 4-PLACE TWIN-JET MORANE-SAULNIER BUSINESS PLANE which Beech will demonstrate this summer is in realm of $225,000. A Beech study has shown that purchased equipment alone, not counting the airframe, would top $90,000 for the 400-mph. French jet in this country, world's first twin-jet available to business fliers. Beech was to receive the M-S 760 this month for flight demonstrations later through its commercial distributors and to the Navy at Pensacola.

PILOTS REGISTERED BY CAA TOTAL 660,449, of whom only 311,659 are active, according to a new CAA tabulation. Leading states in pilot registrations are California with 40,707, Texas with 20,202, New York with 18,713, Illinois with 17,685, Ohio with 15,417, Pennsylvania with 14,678 and Michigan with 12,537.

TEMCO AIRCRAFT IN DALLAS has received a million-dollar subcontract for North American F-100D Super Sabre components including wing-tip panels, ailerons and flaps.

ALLISON 501 TURBO-PROP ENGINE, rated at 3,750 equivalent shaft horsepower and developing 2.3 hp. per pound of engine weight, has received the CAA's first commercial turbo-prop type certificate. It will power a new transport design to be ordered by American Airlines.

NEW AERO COMMANDER DIS-

GIFT TO COLLEGE is this Buckaroo trainer, given by Temco Aircraft Corp., to Arlington State College at Arlington, Texas, for aeronautical laboratory work. Dr. E. H. Hereford, college president, is shown at left accepting the Temco-designed Buckaroo from I. Nevin Palley, Temco engineering vice president.
—(Temco Photo.)

TRIBUTORS announced by Aero Design and Engineering Corp., include Johnson Air Interests, Inc., of Racine, for Wisconsin and L. B. Smith Aircraft Corp. of Miami for Florida, Alabama, Georgia, Cuba and the Bahamas. S. C. Johnson, W. H. Keland and Bill Buchanan head the Racine firm, with Buchanan as sales manager. Herrol Bellomy heads the L. B. Smith distributorship as general manager.

AN AVIATION INCENTIVE MOVEMENT to interest youngsters 7 to 12 years old in aviation has been started by CAA with participation by Junior Chamber of Commerce units. It consists of four phases: (1) competition with simple models; (2) flying and non-flying models; (3) full-size glider and airplane kit construction and (4) flight and technical training scholarships to winners of phase 3 competitions.

FIRST EXECUTIVE VISCOUNT USER in this country will be U. S. Steel, whose executive Super DC-3 services are provided under contract by Capital Airlines.

AUTHORIZED AERO COMMANDER maintenance and service is offered by Bill Long's Dallas Aero Service at Love Field in Dallas under a recent arrangement with the Aero Commander factory.

Airmen's Calendar

June 18—Annual Fraternity of the White Heron Fish Fry and Fly-In, Anahuac, Texas (to join White Herons, write Guy C. Jackson, Secretary, Anahuac, Tex.)

June 18-25—3rd Annual Transcontinental Air Cruise, Sponsored by Philadelphia Jaycees, Palm Springs to Philadelphia.

June 21-24—25th Annual ADMA Meeting, Breezy Point Lodge, Brainerd, Minn.

June 23-25—Institute of Navigation, Maxwell Field, Ala.

July 2—International Aviation Exposition, Detroit.

July 2—2nd Annual Earl Ricks Memorial Trophy Jet Race for Air National Guard Pilots, Los Angeles to Detroit.

July 2-6—9th Annual All-Woman Transcontinental Air Race, Long Beach, Calif., to Springfield, Mass., sponsored by the Ninety-Nines, Inc. Entry chairman is Mrs. Barbara London, 624 Armando Drive, Long Beach 7, Calif.

July 2-14—22nd National Soaring Contest, Elmira, N. Y.

July 3—2nd Annual Western N. Y. Air Show & Races for Midget Planes, Dansville, N. Y.

July 8-10—2nd Annual Jaycee Pikes Peak National Air Convention and Efficiency Race, Colorado Springs, Colo.

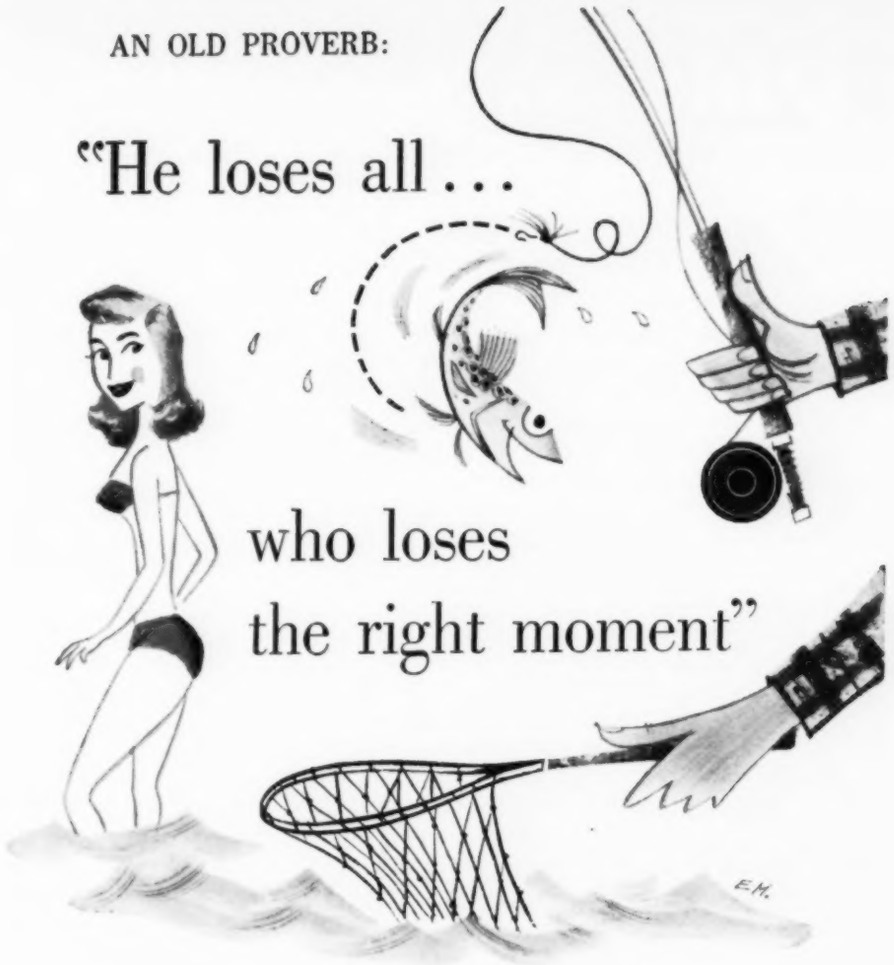
Aug. 5-7—3rd Annual Experimental Aircraft Association Fly-In, Curtiss-Wright Airport, Milwaukee.

Aug. 14—Montana Pilots Association Annual Flying Fish Breakfast and $1,000 Trout Contest, Livingston.

Aug. 19-21—2nd Annual Fly-In, Antique Airplane Association, Ottumwa, Iowa.

AN OLD PROVERB:

"He loses all . . .



who loses the right moment"

This is a good time to consider whether or not the moment has come for you to make the change in your employment that can mean the beginning of a successful, productive and happy future.

Opportunities are outstanding right now at Fairchild Aircraft Division, for experienced aerodynamists and designers looking for interesting, provocative work in the forefront of aviation design, research and development.

Take stock of your present job. See whether you wouldn't rather have the kind of progressive, active and interesting job that Fairchild is offering to the right men.

Send your resume today to Walter Tydon, Chief Engineer.

ENGINE AND AIRPLANE CORPORATION
FAIRCHILD
Aircraft Division
HAGERSTOWN, MARYLAND

"where the future is measured in light-years"

DME NEWS FROM narco

DME INSTALLATIONS MOUNT RAPIDLY

Clarification of VOR/DME Status Removes Doubt About DME Future

THE UNANIMOUS DECISION of the President's Air Coordinating Committee to keep VOR/DME as the basic common navigation system for at least five years and probably longer has cleared the air of any question about installing this new navigation aid.

As a result Narco, major builder of airborne DME equipment, has resumed deliveries, and corporate users have responded with a flood of orders. Many aircraft have already been equipped with Narco DME since the ACC decision on April 20, 1955 cleared the air. Several major airlines have also indicated serious intention of proceeding with DME installations now that any confusion has been removed.

The Narco Model UDI-1 DME is fully CAA certificated for air transport use and is the most widely installed DME in operation today. It provides the pilot with precise distance information from VOR or ILS sites in two scales: –0 to 20 miles or 0–200 miles (statute or nautical).

Virtually every major airway on the Federal Airways system is now blanketed by DME service and the ACC decision directs CAA to complete DME installations at other VOR sites and many ILS locations.

In addition to providing continuous position indications, DME also enables a pilot to easily determine ground speed or find most favorable winds.

Newly introduced approach procedures employing DME greatly expedite approaches and approach clearances.

"Best Navigation aid since the invention of the railroad track" is how Austin Goodwin, Chief Pilot of the Houston Lumber Company, Wichita, Kansas, describes Narco DME in their DC-3.

Narco DME on Three Aircraft of Champion Paper Company

Two Lockheed Venturas and a Beech D-18-S owned by The Champion Paper and Fibre Company of Hamilton, Ohio are Narco DME-equipped. Their Chief Pilot, Richard W. Smith, reports:

"Since installation of Narco DME in our two Venturas last summer, pinpoint navigation has been no problem for us. No longer do we need use the word 'about' in giving our position when asked by ATC or by the towers.

"Accuracy in position reporting is appreciated by all pilots and controllers listening, particularly when the visibility isn't all it could be. This accuracy is attainable by use of DME whether on Omni or Localizer, enables us to follow a precise track over the ground, and makes a simple job of 'estimating' accurately our time over check points.

"The only fault I can find is that we should have had this DME 5 years ago. As you can guess we would dislike very much to have to get along without it now."

Why delay putting the DME system to work for you? See your nearest NARCO distributor for further details or write for brochure on the Narco DME to Department D.

narco
NATIONAL AERONAUTICAL CORPORATION
Ambler · Pennsylvania

MILESTONE FOR PIPER

(Continued from page 72)

Piper delivered 481 lightplanes — more than any other manufacturer in the world — at billings totalling more than $4,000,000. That is a production rate of almost 2,000 airplanes annually, with total 1955 billings headed for $16,000,000. In comparison, the entire lightplane industry delivered only 3,071 airplanes last year with billings of $43,461,000.

At Piper's current rate of production, a new airplane rolls off the production line every 50 minutes. ★ ★ ★

SCENES AT AIRPORT EXECS convention in Tucson recently included these. At top is discussion panel on local air service, being (left to right): Standing—Paul Rodgers, Ozark; C. A. Myhre, Frontier; Carlos Wood, Douglas. Seated—Dr. Leslie Bryan, University of Illinois, new president of American Association of Airport Executives; John Casey, Chicago Midway, and Edward Rogers, ATA. Special train (below) carried airport execs to Nogales, Mexico, as a meeting highlight. "Bandit" scene shows Charlie Winger, CAA, and his wife, and Hal (Frijole) Bean of CAA. —(Top Photo by Gerry Kitchen, Frontier.)

Here's the

Remmert-Werner

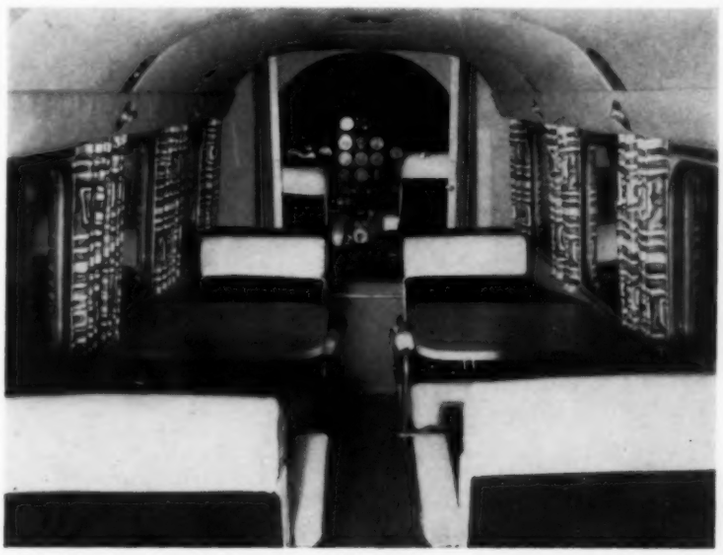
Custom 18

Conversion

Here is a completely new design for comfort and relaxation that you'll have to see — a small ship version of the famous Remmert-Werner Executive DC-3, with as many of its features as we could pack into this already popular airplane. While conversion is in progress on your plane, you may also have, according to your desires, complete overhaul for airframe, engines, tanks, surfaces, wings, electronics, radios, and other components.

- big, easy vision windows
- special, reclining chairs
- adjustable headrests
- spacious interior
- roomy cockpit
- open design
- clean, modern lines
- bright, restful decor

Write for an estimate today, and see what a little imagination and experience can do for your air travel comfort.



— and another new

SUPER-92 DC-3 N38F—ready in June

Super-92 engines, Collins or Bendix radio, new ship guarantee, complete 8,000 hour overhaul, beautiful custom interior, big windows, 200 mph.

Specializing in

DC-3
Lodestar
D18S

- Conversion
- Maintenance

Airframe
Engines
Radios
Interiors

Now Installing

Sperry A-12 Autopilot
Bendix RDR Radar

REMMERT-WERNER, Inc.

PErshing 1-2260 Lambert Field St. Louis, Missouri

AGRICULTURAL AIRPLANE

(Continued from page 67)

are no brace wires anywhere on the airplane. Wing assembly consists of four 15 by 5-ft. panels and no center section is used.

"We have a new design for ailerons — they are located in the middle of each wing panel rather than at the tip and are proving very effective," Larson said. "We call them mid-span ailerons and we think this is the start of a new trend to be followed by others."

The fuselage is of welded chrome-moly steel tubing, triangular in cross-section aft of the cockpit. Covering is fabric and removable sheet metal panels. The experimental model has a bare aft section but tests will also study covering for it. If it is covered, a conventional fin and rudder will be used instead of the experimental's twin vertical surfaces.

The 27-cu. ft. aluminum-sheet hopper has a lining of fibrous glass material.

Main landing gear is the tripod type with no part interfering with airflow over the dust spreader. Spring and oil shock struts are used, with replaceable oil-lite bushings. Tread is 8 ft. Wheels and tires are Ford automotive with 15-in. rims and with Ford automotive brakes at the wheels using Larson master cylinders (Chevrolet innards). A standard industrial tire is used on the Larson bi-lateral spring suspension tail wheel assembly system. Tail wheel has automatic full swivel.

★ ★ ★

WING CONTOURING

(Continued from page 65)

high-performance jet aircraft wings are so aerodynamically smooth that a scuffed upper surface has been known to cut top speed by as much as 15-20 mph. Air racing pilots have long labored to achieve and maintain perfectly smooth wing contours. So have pilots of high-performance sailplanes. It pays off, even though it is difficult to achieve.

Of course, smoothness is sometimes a misleading word when it comes to wing-contouring. Smoothness will result from contouring, but smoothness alone doesn't guarantee that the wing is aerodynamically correct, because the entire design configuration has to be perfect. Therefore a slick wing in itself only looks good.

Aviation Service's "speed-range" department will cause comment because it has taken a firm stand on a much-discussed theory, but it has proven its point with facts and will continue to do so on everything from Piper Cubs to giant airliners. ★ ★ ★

YOUR BEST BET in HOUSTON

Smiling Service for the Plane and we Pamper the PILOT, too

CITY OF HOUSTON

San Jacinto Monument
Biggest Shaft in Texas

ANDRAU RADIO 269 AAP

ANDRAU AIR PARK

at Alief, Texas — 15 Miles Due West of Downtown Houston

TRANSPORTATION ALWAYS AVAILABLE

Bob

Welcomes You

Stop in and See us on Your Next Trip

- Hangar and tie-down space available
- Transportation available to Houston and Shamrock Hotel
- 80-91 octane gasoline
- Unicom
- Coffee Shop
- 22 miles on 283-degree track from Houston LF range
- Low frequency homing beacon 269 Ky AAP
- Runways: hard surfaced, lighted, and rotating beacon, 3450 feet
- 24 hour operation

Have George Haddaway of FLIGHT sing the new Arizona anthem the "Skeeter Song."

JUST AMONG OURSELVES

(Continued from page 13)

or the largest cabins or the fanciest instrument panels.

If any users have special problems, let special remedies apply only to those particular users. Instead of the airlines hogging an approach zone 30 to 50 miles or more in diameter around a congested area, they can be confined to the immediate area of an airport's approaches. Let them stay above 2,000 ft. until they reach the immediate approaches to their terminals. We can also narrow the airways—the big airplanes are equipped to fly them accurately.

The idea of erecting a bad-weather blockade to business planes around congested areas is impractical, unsound and ridiculous. If any zones and altitudes are to be restricted, let's be realistic and make the rules fair to all.

What air progress needs is less regulation and fewer restrictions. But the exclusionists are going in the exact opposite direction and are yelping for more regulations to keep private planes out of the air.

This kind of big-I-and-little-you nonsense has no sound basis, and all the double-talk and technical gobbledegook of airways and airport manipulators must never be allowed to undermine the live-and-let-live principles which genuine, lasting progress demands. Threats and undercover influence to exclude public flying from congested areas can only lead to serious trouble for the exclusionists. Instead of unselfishly asking for the help and support of the so-called little people of the air in solving their special problems, the self-styled monopolists are openly antagonistic and their threats are inviting all kinds of retaliation.

Let this serve as a simple but sincere reminder to all concerned: the public has not yet turned its highway and street regulations over to a bunch of truck and bus drivers and it will never turn its air space over to a small minority of unyielding air transport drivers. The professionals on the ground learned this the hard way through restrictions on their commercial use and abuse of public facilities. Those in the air will undoubtedly have to learn their lesson the same way, although a little cooperation, common sense and self-enlightenment now could avoid troublesome and costly handicaps later for them.

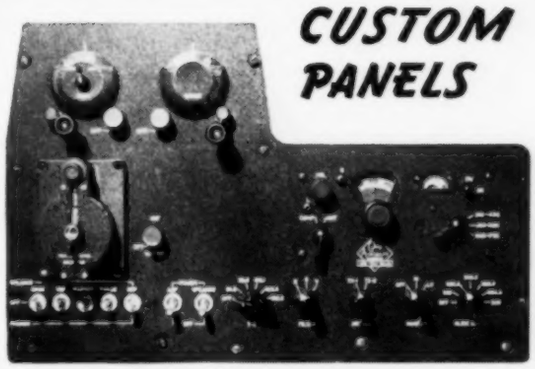
LET'S PUSH CONVERTIPLANES

AN important new chapter in aeronautical progress was made recently when the first conver-

WE SPECIALIZE in Beechcraft RADIO SERVICE

5-Day! installation

CUSTOM PANELS



FOR... TWIN BONANZAS

FAST•EFFICIENT•COMPLETE

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GRAY AIRCRAFT SERVICE at DALLAS

FROM 100 HRS. TO THE NEXT — SAFE, DEPENDABLE SERVICE

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SAFE

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FLIGHT

CALL ON GRAY FOR BEECHCRAFT RADIO AND AUTOPILOT INSTALLATIONS

COMPLETE INVENTORY OF LEAR PARTS

There's a Gray Aircraft Service Custom Panel to satisfy any Twin-Bonanza owner's exact needs — just tell us what you want two weeks in advance and we'll guarantee 5-day installations! Many Twin-Bonanza owners prefer the Custom Panel shown above. It conveniently groups controls for an ARC 15D Omni, Lear 36-Channel LVTR-36 Transceiver, ARC Range Receiver, Lear ADF-14, ARC T-11 Auxiliary Transmitter, Range Filter, Microphone Selector, High-Low Lear 3-Light Marker Beacon and 6-Channel R-89 Glide Slope receiver. Visit our shops and let D. A. Cody explain our personalized Beechcraft service.

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CERTIFIED BEECHCRAFT SALES SERVICE

Gray Aircraft Service Co., Inc.

LOVE FIELD DALLAS

sion from helicopter flight to airplane flight was made by a convertiplane, this distinction going to the McDonnell Aircraft Corporation's military prototype convertiplane. Two other outstanding convertiplanes are approaching developmental stages where flight will be undertaken, one a Bell Aircraft Corporation prototype and the other a Transcendental Aircraft Corporation prototype. The Bell hasn't flown. The Transcendental has flown but has not yet accomplished full conversion in flight.

It is impossible to exaggerate the great possibilities for convertiplane operations, both in commercial and military activity. The radical new aircraft development combines the helicopter's vertical take-off and landing and slow-flight advantages with the high-speed advantage of the airplane. In our planning for the future, we have to face the helicopter's inherent aerodynamic speed limitations which will not permit high forward speed. By the same token, we cannot have faster and faster fixed-wing airplanes without sacrificing landing speeds and hence short-field capabilities.

The obvious answer is to combine the virtues of the two designs in an all-out development of the convertiplane principle. The greatest value of air transportation is speed but speed at the expense of distant and costly landing facilities will limit aviation usefulness rather than extend it. The convertiplane principle allows us to reduce landing area requirements while extending speed. In fact, it allows us to transfer our landing areas from the distant rural fringes to the very centers of our cities.

If commercial air transportation is to successfully penetrate the short-haul air travel market, it will have to throw off the yoke of prohibitive airport requirements and time-consuming downtown-to-airport surface travel. The convertiplane is thus aimed at a tremendous opportunity in air travel — the realization of fast air transportation between city centers. That kind of air travel will attract hundreds of thousands of passengers where only hundreds now fly, for in the short-haul problem the convertiplane can move millions of passengers much more quickly and comfortably than autos, busses or trains. The more congested our streets and thoroughfares become, the greater will be the convertiplane's advantages.

Something is wrong when an air transportation system utilizes large transports only and fails to properly develop smaller, more flexible aircraft which can serve vastly more cities and towns. Basic principles and needs are involved in the development and application of the convertiplane. It offers a greater potential than the DC-3 or DC-7 ever promised. Instead of a total domestic scheduled air transport fleet of fewer than 1,500 airplanes, this great nation should be operating 15,000 or more scheduled air transports for the travel and commercial needs of its citizens. If our development continues to favor larger and larger airplanes, only our larger metropolitan centers will be favored with air commerce. But the convertiplane can bring a return to reality by making air travel available to millions of passengers whose short-haul needs have been ignored and completely overlooked by transcontinental and intercontinental aircraft design emphasis.

MANAGEMENT TEAM OF NORTH CENTRAL AIRLINES is pictured in sales conference with Hal N. Carr, president (center). Left to right are Bernard Sweet, secretary-treasurer; Arthur Schwandt, v. p.-industrial relations; Carr; Frank Buttomer, v. p.-traffic and sales; Alvin Niemeyer, v. p.- operations (glasses); and R. H. Bendio, Jr., v. p.-maintenance and engineering.

SELLING LOCAL SERVICE

(Continued from page 53)

the previous March, it now boarded 722. Key to the drive's success was painstaking preparation. Two briefings were conducted. A basic control list was a chamber of commerce tabulation of firms employing 50 or more persons. Each individual to be contacted was studied beforehand. New accounts were added, travel cards were signed, charters were sold and a few "gripes" were settled first-hand.

For its 5th anniversary, Southern Airways of Atlanta exploited a 5-point sales program which boosted its revenue passenger miles by 24% during the last half of 1954. Community celebrations on its systems included civic club programs, television, radio and newspaper promotions such as a special edition of the Valdosta (Georgia) "Times." A telephone sales training program converted more inquiries into actual sales and two-man teams calling on connecting airline cities produced a build-up of interline traffic.

One of the hottest sales drives in local air service is that conducted by Trans-Texas Airways, whose traffic and sales director, L. J. Eichner, is scoring big gains in business. A variety of promotions includes featuring different cities on TTA timetables, such as tying in local holidays or events such as the Tyler rose festival, Corpus Christi buccaneer days, Stuttgart's duck calling contest and the state fair in Dallas. TTA distributes 30,000 timetables monthly and these local promotions in 1954 were supported in the TTA house organ with 7,000 copies monthly distributed for individual promotions. In its newspaper advertising, TTA has come up with a very effective airline version of testimonial ad design based on the old and familiar idea of featuring endorsements by celebrities of soaps, autos, patent medicines and other products. TTA uses a 60-line newspaper ad for this, in which a local notable is pictured and tells why he flies Trans-Texas, how he likes the service, praises the local TTA agent for his helpfulness and tells why local air service is vital to the community.

In small and medium cities, food stores cooperate by passing out thousands of handbills. The airline's cowgirl hostesses appear at the super markets on certain days announced in the stores' ads and hand out "junior pilot and junior hostess certificates." Handbills furnished by TTA and advertising both the food markets and the airline are stuffed in each bag of food by the checkers. Trans-Texas also has sold local gas, electric and water utilities on the idea of stamping their monthly statement mailing with air service promotional matter.

★ ★ ★

NO LONGER AN ORPHAN

THAT "new look" so much in evidence around the National Aeronautic Association during the past year took on added significance last month when NAA President Tom

Lanphier, Jr., announced that the National Aviation Education Council had become affiliated with the NAA.

We always have believed that the major air age educational job in this country should be in the hands of educators and not in the hands of aviation trade associations. This in no wise condemns the generous help our U. S. trade associations and individual companies have contributed to the various air age educational programs. Nevertheless such programs have suffered from on-again, off-again type of operations with no long range planning that could be put into action with a guaranteed budget.

The National Aeronautic Association, which everyone knows is definitely *not* a trade organization, is the logical home for the NAEC, which in turn is made up of many outstanding leaders in the field of education.

Under the terms of the affiliation, the NAA underwrites an NAEC budget at approximately $30,000 per year for three years, at the end of which time it is hoped that the group will be self-supporting from membership revenues. Also, NAEC and NAA will remain independent organizations, but their close association will make the fullest use of mutual facilities, personnel and experience, and each will be represented on the board of directors of the other.

There are literally thousands upon thousands of people connected with or interested in aviation who would gladly assist, each in their individual ways, with intelligent aviation educational programs. The door is now open for their help through active or affiliate membership in the National Aeronautic Association.

One such group is made up of several hundred thousand licensed pilots in the United States who unfortunately never have had much of an opportunity to make any kind of organized contribution to aviation education. But the recent formation of the National Pilots Association, which is also to be affiliated with the NAA, promises to plug up that particular gaping hole. As an integral part of NAA, the pilots of our nation will be able to make their influence and efforts felt all along the line where general aviation progress and development are at stake.

Nothing is as encouraging as the present promise of the National Aeronautic Association finding its rightful place in the sun. It's going to take a lot of doing but at last the ball is rolling. Assumption of the major responsibility of air age education is the first big step.

★ ★ ★

● This new Scott-Firewel miniature Oxygen Regulator system is doing a full-size job on the Douglas A4D "Skyhawk". The "Skyhawk" fulfills a need for lightweight fighter aircraft. This system helps solve giant problems caused by the need for miniaturization.

The regulator is attached to the pilot's standard oxygen mask. Resulting in a 100% saving of valuable panel space. The regulator itself weighs only 1¾ ounces as compared to 4¾ pounds of the standard regulator. A small ⅜ inch mask-hose replaces the regular, bulky breathing tube. These are only a part of the advantages of the new Scott miniature Oxygen Regulator System now available for military and commercial use.

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HELICOPTER MANUFACTURING IN OKLAHOMA is scheduled by the Brantly Helicopter Corp., for its high-performance, 2-place, 1,400-lb., 150-hp. Brantly B-2, pictured above. Brantly has 100,000 sq. ft. of shop space at the Frederick, Okla., airport.

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Another Milestone in Aviation Service

In keeping with the dynamic growth of air travel AIRCRAFT SALES COMPANY, too, is passing a milestone of progress in announcing this month the expansion of service and facilities with the opening of the Longview Branch of Aircraft Sales Company at the Gregg County Airport in Longview, Texas.

The new Longview Branch provides round the clock service with GULF 80- 91- 100 octane fuels, plenty of room for transient storage, and prompt, courteous service. The shop operation is staffed and equipped to overhaul engines and airframes, propellers, accessories, complete inspection and relicense (D.A.M.I.) services. Custom paint jobs as well as radio and auto-pilot installations work are offered at flat rate prices.

Next time your flight plan takes you to the East Texas area be sure to stop in at the Longview Branch of AIRCRAFT SALES COMPANY. You will find that your every requirement in aviation needs has been provided for.

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Questions and Answers for Operators

Terminal Parking for Executives

QUESTION: There's a question that troubles me and troubles my boss a lot more. My job is that of chief pilot for a corporation which owns five aircraft. Last week I had the job of picking up four men in the company DC-3 at a metropolitan airport and flying them to our plant. These were all important men in the business world. We were trying to show them every courtesy possible.

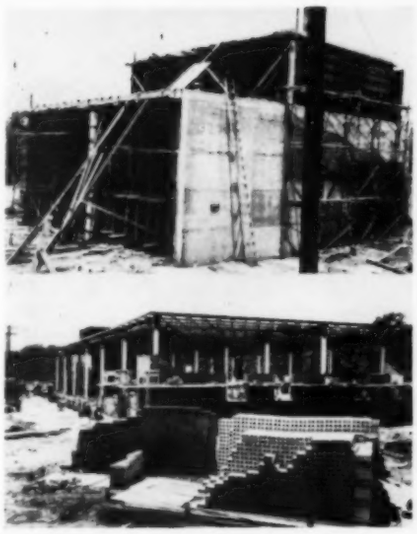
I was told to pick them up at the terminal building at 9:30 sharp. I landed at 9:23 and asked for clearance to taxi to the terminal ramp. There were only two airline aircraft parked at gates and there were plenty of gates available, but I was given the wave-off when I tried to park. Finally I had to taxi to a fixed-base operator's apron and borrow a car to drive up to the terminal to get my passengers. That sort of thing has happened to me before. There are some airports, of course, where I can pick up or drop my passengers at the terminal provided there is a vacant gate position, but there are many terminals where I can't get near the terminal apron.

Why?

ANSWER: Let us gently suggest that you also ask that question of the logical official of any town where that happens to you, the airport manager. We know that it happens but we do not know why in any individual case.

Not long ago the same question came up among a gathering of several executive pilots over coffee. One of them said that he wasn't allowed to use the terminal ramp to unload his employer although he was made to pay a landing fee and that fee was a little more than comparable to what an individual landing of an airline cost. The whole group had praise for a few airports which they said gave them super-service. But they had had some rough experiences at others.

Here's the way we look at it. The terminal is a building designed for the loading and unloading of passengers. There are facilities for handling baggage, for ground transportation, for food and for man's comfort. In theory they are planned on a basis intended to provide parking and gate positions for the maximum regular peak occupancy of scheduled air transportation — plus. That plus represents the margin of positions calculated to care for excesses produced by irregularities due to delays, weather or other factors, and to allow for the expected growth of schedules. A terminal is not like a suit of clothes



SOUTHWEST AIRMOTIVE'S NEW JET OVERHAUL facilities include test building (above) on the east side of Amon Carter Field between Dallas and Ft. Worth. Two-cell test building (top) is 36 by 47 ft. and "jet hospital" building (for before and after test work) is 123 by 64 ft. These and an extension of its Love Field overhaul plant will cost about $1,000,000. Southwest is the first fixed-base operator to receive an Air Force jet engine overhaul order — a $3,000,000 contract for over 1,200 Allison J-33 engine overhauls.

which must fit you the day you buy it. It must be designed to care for growth.

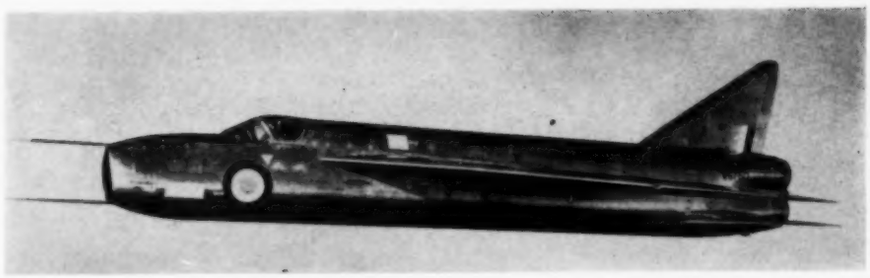
Peak hours of occupancy of the terminal apron in most instances occur at fixed hours of the day depending on the schedules devised by the airlines to serve the convenience and necessity of the traveling public.

At other than peak hours there may be several positions vacant. Some airports plan a gate position for executive aircraft to meet the situation. We've seen them. They pay off in good will.

But we all know that the planning we've described above is the ideal, not always the reality. Many of the busy terminals in this country are tighter than a bathing suit and some can't handle their airline schedules because of limited parking positions. You can readily understand the operating problems there. We do feel, however, that if space is available and you have passengers to load or unload, good management should permit it without question. A passenger seems to us to be a passenger no matter what aircraft he gets out of or crawls into.

There is just one admonition and it comes from some of our cynical friends. Don't pull into a gate position and tell the boys you'll be there only five minutes when you don't plan to be back for hours. Pilots have been doing that for years and that's the reason it is a little rough at some terminals. Loading and unloading time should be reasonable.

Another suggestion. When you are waved off by some unknown person



HIGH BRITISH HOPES ARE HELD FOR THIS NEWEST SUPERSONIC FIGHTER, the English Electric Company's P-1. It is powered by two Sapphire engines mounted one above the other and has a swept wing of near delta form. It attains supersonic velocity in level flight.

—(British Information Services Photo.)

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Houston, Texas

Dal-Tex Aviation, Inc.
Highland Park Airport and Love Field
Dallas, Texas

Hair Flying Service
Harding Field
Baton Rouge, Louisiana

Howard Aero Service, Inc.
San Antonio International Airport
San Antonio, Texas

Poelman Aircraft Co.
New Orleans Airport
New Orleans, Louisiana

Ragsdale Flying Service
Municipal Airport
Austin, Texas

Kenneth Starnes Aviation Service
Adams Field; Little Rock, Arkansas

Southwestern Skyways, Inc.
New Municipal Airport
Santa Fe, New Mexico

Sunny South Aircraft Service, Inc.
Broward International Airport
Fort Lauderdale, Florida

Yingling Aircraft, Inc.
Municipal Airport
Wichita, Kansas

AVIATION EXPERTS OF THE AMERICAN PETROLEUM INSTITUTE are pictured with Cessna Aircraft Company officials at a meeting last month in Wichita of the API's aviational technical committee. Headed by Robert C. Oertel, aviation sales manager of Esso Standard Oil, the group of aviation fuel and lubricant sales managers issued a policy statement regarding public airport sales of petroleum products, as follows: (1) excise taxes should not be applied to aero petroleum products; (2) all conduct of aviation petroleum products and services at a public airport should be reserved to private enterprise; (3) free and open competition should prevail in the operation of petroleum products business on and connected with public airports without exclusive concessions which would result in monopoly or discrimination; (4) fair rental value of property or facilities on public airports should form the basis of agreements, leases or other arrangements for aviation petroleum operations; and (5) no special fees or charges should be assessed for delivery of aviation petroleum products on or to a public airport.

and there is plenty of room, look up the airport manager and check on it. The wave-off may have come from someone who had no authority to give it and may have been against the policy of the airport.

If the policy of the airport turns out to be one that indicates you aren't wanted whether there is room or not, it's going to be mighty hard for the manager to explain that attitude if you press the matter. If he gets complaints from enough of you he'll have to give the situation consideration.

Questions for Norman Conference

QUESTION: I understand the Norman Airport Conference this year will be held on October 5, 6, and 7. I want to attend and plan on taking our mayor with me. Both of us have some questions to which we would like to get answers. How can we be sure the program will be such that we can get the answers?

ANSWER: Brother, you just put your foot in the bar-trap. People with questions are just what the sponsors of the Norman Conference at Norman, Oklahoma, want. You write them down and send them to Joe Coulter, Max Westheimer Field, Norman, Oklahoma. From letters like the one you're going to write him, Joe will be able to shape up a Conference program

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MAKING LIKE A BONANZA, this is Joe Ann Surtees, San Antonio's entry in the Galveston, Texas, splash day beauty contest. She flew to the contest, however, in a Super 18 Beech as guest of Alamo Aviation, Beech distributor, and its manager, Bill Willis.

STRAWBERRY BLONDE TWINS, Lorna and Joyce Bolton, helped Slick Airways feature its cargo service handling of a scale-model of NBC-TV's new "Color City" in Burbank, Calif.

that will meet the needs and desires of those who plan to attend. When you do that you are making like the pulse of aviation and Joe is just the doctor to pull out his Bulova and listen.

Score One For a Tenant

Not infrequently in our travels we find troubles between agencies owning airports and tenants on the airports, sometimes operators, sometimes other tenants. On occasion, we get the feeling that relations between the landlord and tenant are bitter. The airport manager is the agent of the owning agency and usually bears the brunt of

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T.M.

GLOBE

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BIGGER AND BETTER BEAUTY CONTESTS FOR HOLIDAYS ON WINGS helped attendance for the Los Angeles Junior Chamber of Commerce's 14th annual Holiday on Wings program recently. Some of the finalists are shown above.

such friction. A tenant may be outspoken in his criticism and an airport manager may speak his feelings, too.

It is our opinion that airport managers and operators and tenants are generally pretty good people. Friction that breaks into print tends to cloud the trustworthiness that is characteristic of most airport managers and tenants.

The other day we saw a letter that supports our own belief in the people who manage and are lessees on public airports. The letter was written by a city manager in Florida to a friend of ours to apprise him of action taken by a tenant who had gone into bankruptcy about five years ago. We won't mention places or names for the reason that we don't know either party well enough to ask permission to use his name and most of us are inclined to look on talk of bankruptcy with the same reticence as pregnancy.

When this tenant went into bankruptcy, he had an unpaid rental account due the city in the amount of $1,650. He moved to another state and since that time, by monthly payments, has liquidated the account. That's a very fine degree of honesty.

One of the paragraphs of the city manager's letter pays tribute to this former tenant in these words:

"I call this to your attention as I feel that this is a most honorable act on the part of Mr. Blank and the same should be recognized as such, and I expect to present this to the City Commission at its next regular meeting, so that this outstanding action on the part of Mr. Blank in acknowledging his obligations will be given the publicity it deserves."

Let's strike a medal for each of them. ★ ★ ★

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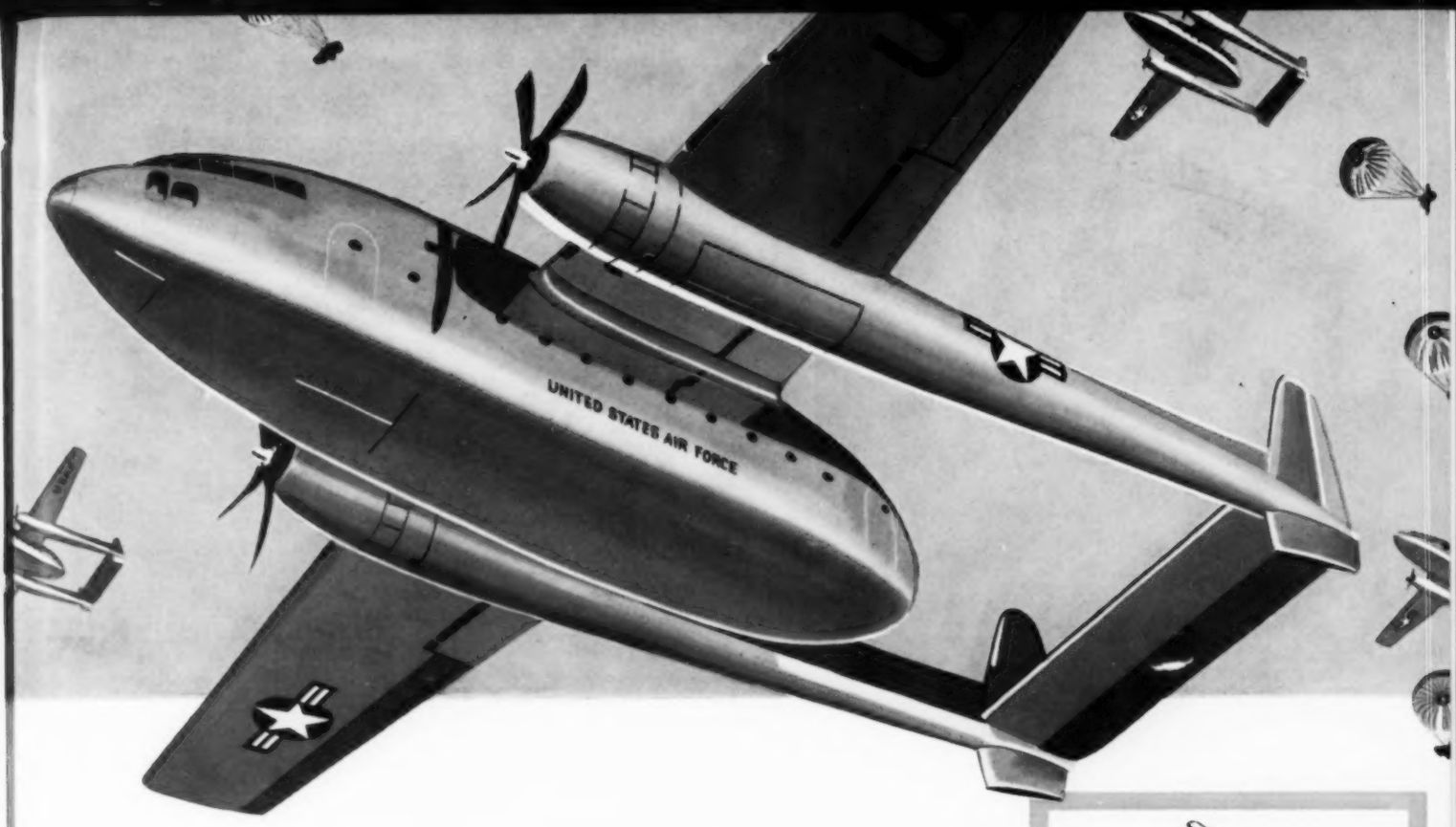

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